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MARRUBIIN AND FLUID EXTRACT OF MARRUBIUM.

By Frederick G. Hertel, Ph.G.

Abstract from an Inaugural Essay.

In some localities horehound beer is used, for the preparation of which it was ascertained, horehound, ginger, Irish moss and liquorice are employed.

Of pharmaceutical preparations which are in popular use, the fluid extract and syrup of horehound and horehound candy are most frequently employed. On making a fluid extract of horehound using ten pounds of the ground herb, and diluted alcohol for extracting it, it was noticed that after standing about a week, a deposit of well-defined crystals separated from the finished extract. When heated on platinum foil the crystals melted, then charred and finally volatilized without leaving any residue. They were quite soluble in chloroform, alcohol and ether, and slightly soluble in water. The principle is insoluble in benzin, is not colored by acids, does not respond to Fehling's test for sugar, nor to the alkaloidal group-reagents, and from its alcoholic solution is not precipitated by lead subacetate. The slight yellow color of the needle-shaped crystals was removed by several recrystallizations from alcohol; they retained their slowly developing but persistently bitter taste. The deposit from the 10 pounds of herb amounted to nearly one ounce, and the fluid extract appeared to be as bitter as before. By precipitating the fluid extract with basic lead acetate, filtering, treating with H_2S and concentrating the filtrate, more crystals were obtained.

The *National Dispensatory* states that Harms obtained 30 grains of marrubiin from 25 pounds of the herb; but neither his process nor

that devised by Kromayer, both starting with an infusion of the herb, appear to be the best that can be devised, owing to the sparing solubility of the principle in water.

From the observations made it is obvious that diluted alcohol is not a suitable menstruum for the preparation of the fluid extract. Using a liquid composed of 2 parts of water and 3 parts of alcohol with 5 per cent. of glycerin, the deposition of crystals commenced even before the fluid extract was finished. A menstruum prepared from 2 parts of alcohol and one of water with 5 per cent. of glycerin yielded a fluid extract remaining free from crystalline deposit.

It should be stated yet that marrubiin crystallizes best from cold alcohol; the crystals from hot alcohol are less compact, and ether and chloroform evaporate too rapidly to permit of the formation of handsome crystals.

OLEUM PEPONIS.

By Louis Augustus Minner, Ph.G.

From an Inaugural Essay.

Two samples of oil of pumpkin seed were procured, one each from New York and Philadelphia. Only insufficient information could be had as to their mode of preparation. They were of a pale yellow color and became semi-solid at 32° F. One sample had considerable of a deposit resembling lard in color and consistency, and was rather freely soluble in alcohol. Both oils were administered for tænia, in the form of emulsions and in doses of half an ounce, followed by a dose of castor oil, without expelling the tape worm. The same quantity of the oleoresin of pumpkin seed ejected promptly large portions of the tænia.

For preparing this *oleoresin* the seeds were reduced to a coarse powder by triturating them in a mortar with pumice stone, exhausting with ether by maceration and percolation, and evaporating the solvent at a gentle heat. After washing the oil with some alcohol it formed a thick liquid of a red color, had a peculiar unpleasant odor and a disagreeable rank taste. Its specific gravity at 60° F. is about 0·924. It is almost insoluble in alcohol, soluble in chloroform, ether, benzin and benzol, and does not congeal at 32° F. Strong sulphuric acid changes the color to green, then dark green, and after several hours to a dull red-brown, a blackish deposit

being also formed. Strong nitric acid changes to red-brown, and after about 5 minutes causes violent effervescence, a disagreeable odor being given off, and after cooling a reddish-brown semi-solid mass is left.

Pumpkin seeds are not as frequently used as they would be if they could be administered in a more convenient form. The introduction of a reliable preparation seems desirable and, in the writer's opinion, the oleoresin is both a convenient and elegant as well as effective preparation. It can be easily and readily prepared, and is probably the most concentrated liquid form of pumpkin seed that can be devised. It may be given in doses of ½ to 1½ fluid-ounce, in the form of an emulsion flavored with aromatics.

THE BARK OF PRINOS VERTICILLATUS.

By J. Stewart Smith, Ph.G.

From an Inaugural Essay.

On exhausting 50 gm. of the powdered bark with different solvents the following results were obtained:

	Per Cent.
Extract with petroleum ether,	2·44
stronger ether,	2·07
absolute alcohol,	6·63
water,	5·36
(including 0·23 per cent. ash.)	
caustic soda,	3·99
(after deducting 1·19 per cent. ash.)	
diluted acid,	1·79
(after deducting 2·05 per cent. ash.)	
chlorine water,	1·96
Soluble organic compounds, Total,	24·24

The petroleum extract contained a little volatile oil. The ether extract was entirely soluble in hot alcohol, had a neutral reaction and was free from tannin. The alcohol extract was entirely soluble in chloroform, partly soluble in water with a faint acid reaction, contained tannin, reduced Fehling's solution, and gave with Mayer's reagent a slight precipitate, the nature of which was not ascertained. The powdered bark contained 9 per cent. of moisture and yielded 4·3 per cent. of ash. See also analysis of the bark, by L. C. Collier, in Amer. Jour. Phar., 1880, p. 437.

A NEW SPICE ADULTERANT.

By Frank A. Hennessy, Ph.G.

Contribution from the Chemical Laboratory of the Philadelphia College of Pharmacy.—No. 72.

Read at the Pharmaceutical Meeting, May 20.

Some time ago the attention of the writer was called to some samples of "artificial ground spices" which bore a close resemblance to the pure articles. It was learned that the production of these goods was the result of numerous experiments, and subsequent investigation succeeded in bringing to light a branch of manufacturing industry of no small magnitude, which has for its sole object the production of articles known to the trade as "spice mixtures." The manufacture of these articles is conducted in a large steam bakery in Philadelphia. Samples of the materials used have been secured from time to time, and these are presented with this paper.

The substance which forms the base for all these mixtures, and which is designated in the sample as "meal," was found on inquiry among several millers to be a very low grade of wheat.

It is not known to them by any special name, but might be called "blow-room stuff." It is a little better than feed, to which it is sometimes added to improve the quality, but is a lower grade than middlings. Samples from lots which had been delivered to the bakery at different times were identical.

The meal is made into a dough with water, rolled out and cut in the same manner as soda crackers, and baked in an oven.

These crackers or "biscuits," as they are termed, are then allowed to dry thoroughly when they are ready for grinding.

The different shades are obtained by the use of coloring matters which are mixed with the meal when it is being made into dough.

The "white" biscuit is made from the plain meal without coloring. The "yellow" is made with the aid of turmeric, a little of which goes a great way in imparting a rich yellow hue, such as is peculiar to mustard.

A sample of the coloring matter used in the "brown" biscuits is also presented. An analysis shows this to be a mixture of about equal parts of Spanish brown and turmeric.

Charcoal is used in the "black" biscuits.

Some biscuits having a red color, such as might have been used to adulterate Cayenne pepper, were seen, but it was impossible to secure samples at the time.

Large quantities of these spice biscuits have been delivered to a spice house in Philadelphia, and it is not known that any have been shipped out of the city. As they are all sent to the spice dealers in the whole condition, probably on account of the lack of facilities for grinding, the samples of powders which are presented were ground by the writer in a small drug mill, and may only roughly resemble the powders prepared by the spice millers.

However, they will serve to show how closely the ground spices may be imitated.

The sample labelled "pepper mixture" is made up of the "black," "white" and "brown" powders—the one labelled "clove mixture," of the "brown" and "black."

"Cracker dust" is said by many investigators to be used as a spice adulterant, and a sample of this material from the same bakery is presented, although it has never been used in the manufacture of these biscuits. It consists altogether of stale bread which accumulates in large quantities, and which is thoroughly dried and ground.

An analysis of the spice biscuits gave the following results, the "black" and "white" powders and the original meal being taken:

	White.	Black.	Meal.
Moisture,	7·52	8·27	—
Soluble ash (HCl),	3·	4·98	2·95
Insoluble ash (HCl),	trace	4·45	—
Total ash,	3·	9·43	2·95
Glucose,	14·51	14·51	14·51
Cane sugar,	6·03	3·02	11·02
Residue after treatment with cold H_2O and dried at 100° C.,	75·8	83·2	65·8
Charcoal and matter insoluble in boiling H_2O,	—	54·1	—
Ash of same,	—	15·57	—

The ash consisted of Na, K, Cu, Mg, chiefly as phosphates, with

some sulphates, the insoluble portion of the "black" being fine sand.

It is evident that without the most careful examination, the presence of these mixtures in ground spices might often escape notice.

The starch granules are usually so much altered in the process of baking as to render their identification almost impossible.

As pure ground pepper, for instance, yields:

Moisture,	8–10
Ash,	2–5
Starch,	34–43
Total reducing sugar equiv.,	42–55

It is obvious that in case of admixture with this material, the determination of any or all of those constituents would be of no value, and it is probable that the only reliable results would be obtained from estimating the amount of piperine and resin, which is quite constant.

Some points of similarity to other spices might be mentioned to show how admirably these mixtures are adapted to their purpose; but the object of this paper is simply to call attention to what is believed to be the latest development of inventive genius in this direction.

MICROSCOPICAL EXAMINATION OF POWDERS.

By Hans M. Wilder.

Powders.—Considering the number of histological elements of varying specific gravity which constitute a drug when powdered, and considering the small amount of powder actually present in a "mount" (seldom more than one-half to one grain, generally less), it will be evident that a single slide rarely, if ever, fully represents the drug. It will be necessary, therefore, first to insure the thorough mixing of the powder (either by shaking of the container or by triturating a portion in a mortar), and, secondly, to make about a dozen slides, the examination of which will bear out the above statement. Once, on examining powdered Alexandria senna, the writer made twenty slides before he found the middle layer of the fruit pulp, for an illustration of which see Proceedings A. Ph. A., 1882, p. 240, E.

Medium.—For casual examination almost any liquid will do. Besides the time-honored water and more or less diluted glycerin, the writer finds sweet oil, old essential oils and especially liquefied carbolic acid of great service as clearing media; a concentrated solution of chloral hydrate clears nearly as well as the latter substance.

Mounting.—If the powder is tolerably uniform in fineness and quite dry, so that it does not cake, a very cleanly way of mounting is to follow Mr. A. P. Brown. Breathe upon a slide, press it down on the powder, and rap the slide smartly with the edge on the table so as to get rid of the superfluous powder, when the remainder will be found distributed quite evenly on the slide. The writer now puts on the cover glass, places on top a small weight (a conical rifle bullet, for instance), brushes off the excess of powder, and adds one or more drops of the medium next to the cover glass, when the fluid, if not too viscid, will quickly run under by capillary attraction. This does away with the otherwise inevitable "messing," and comparatively few (sometimes none) air bubbles will be noticed.

In order to make a typical slide, since very seldom a single slide contains all the characteristic elements, the latter must be transferred from several slides to one of them, unless one prefers to keep three or four slides of the same powder.

Comparison.—In order to get a powder of undoubted purity, it is certainly best to powder the drug one's self, and since the volatile parts are of no consequence microscopically, sharp drying will much facilitate the powdering. The pharmaceutical microscopist ought to be sufficiently familiar with the microscopical appearance of the more important powdered drugs to be able not only to recognize them at once, but also be able to state that such and such other elements (tissues) do certainly *not* belong to the drug in question. Whether he is able to tell what these foreign substances are, will depend on his familiarity with the usual impurities and adulterations; it is manifestly impossible to be acquainted with everything that might be present in a powder.

Powdered Rhubarb.—The writer mentioned the use of essential oils as media for the examination of powders, because of their clearing action. On examining a sample of rhubarb in oil of fennel seed

he found that the oil merely brightens the reddish yellow color of the pure rhubarb, without extracting it, while the smallest speck of turmeric was surrounded by a broad halo of bright yellow, besides acquiring itself a purely yellow color. This will be noticed already on mixing the powder with the oil on the slide.

Silicate of sodium as a medium.—The writer has found soluble glass (water glass) to be an excellent medium for permanent mounts, possessing several advantages. It clears well and dries ("sets") very quickly. Scarcely fifteen minutes, after having adjusted the cover glass, the slide may be scrubbed with a nail brush, without dislodging the cover. "Ringing" is not necessary. Its disadvantage is that sooner or later flakes appear here and there in the mount, this may be obviated by adding glycerin in the proportion of 1 volume of glycerin to 4 volumes of soluble glass (but then it takes a longer time to dry); the mixture at first quite turbid, clears very soon. Another disadvantage is that after some time it becomes next to impossible to remove the cover glass, and when removed, the slide will be found roughened. Soluble glass is incompatible with acids (even very weak), alcohol, ethereal liquids, collodium, essential oils, carbolic acid, gum arabic mucilage, all of which precipitate the silicic acid in the well-known gelatinous form. Its alkalinity will, of course, cause it to alter the shade of most of the stains—carmine, for instance, gets an orange shade, and the purplish-blue color of hæmatoxylin stain turns sepia-brown —and color lignified tissue more or less yellow; but this is not exactly a disadvantage.

Dark colored powders may be rendered a good deal lighter in color (some quite bleached) by a 24 hours' previous maceration in moderately strong water of ammonia and subsequent washing with water; as far as can be judged, no alteration beyond the removal of color takes place, not even the individual starch grains are altered by this treatment.

Fineness of Powder.—In conclusion the writer would call attention to the fact that the three different degrees of powder in commerce—very fine, fine and moderately coarse—quite seldom give identical slides. In "very fine" are often found structures which are mostly wanting in "fine" and especially in "moderately coarse" and *vice versa*. There are, though, several firms who make a point

of letting each degree of fineness represent the *whole* drug, and who are not content with grinding "moderately coarse," separating the finer powder by sifting. A truly representative powder for percolation, for instance, can not well be of a uniform grain; it must needs contain more or less "fine" powder.

SOME INDIAN FOOD PLANTS.

IV.—Peucedanum Canbyi, COULTER AND ROSE.

BY HENRY TRIMBLE.

Contribution from the Chemical Laboratory of the Philadelphia College of Pharmacy.—No. 73.

Read at the Pharmaceutical Meeting, May 20.

The following report of this plant has been forwarded by Dr. V. Havard, U. S. Army Surgeon, at Fort Buford, N. Dakota. It is known as "Chucklusa" by the Spokane Indians:

"Of the nine or ten species of Peucedanum which are bulbiferous in North America, the bulbs of this species, in size and flavor, are probably the best, or certainly among the best. They are preferred to those of any other plant by the Spokane Indians, the Camas excepted.

"The Chucklusa is a native of Washington and Oregon. It does not appear to be much diffused and has only been reported from a few localities.

"It is from 3 to 8 inches high, with a short underground stem from a thickened, more or less elongated, rootstock which ends in a solid tuber; leaves finally dissected into short segments; umbels 5 to 10-rayed, the white rays 1 to 2 inches long; fruit with narrow wings, ovate-oblong, 4 lines long, and half as wide.

"The bulb, buried 3 or 4 inches under ground, is globular in shape; the transverse diameter from ¾ to 1½ inches and slightly exceeding the vertical diameter. It is covered with a black epidermis, easily rubbed off, and entirely made up of a white farinaceous mass with a granular, homogeneous texture. In taste it is very pleasantly palatable with a slight aromatic flavor. It is eaten either raw or baked, and often pounded into flour from which a nutritious and wholesome bread can be made."

An analysis of the chucklusa, sent me by Dr. Havard, gave the following results:

	Per Cent.
Starch,	17·02
Albuminoids,	3·25
Glucose,	1·24
Saccharose,	10·66
Mucilage,	15·34
Dextrin,	·40
Resin,	2·57
Fat and wax,	2·12
Ash,	4·20
Moisture,	7·90
Cellulose and undetermined,	35·30
	100·00

Tannin was not found, but a small quantity of chlorophyl appeared to exist in the black epidermis. While this food is not so rich in albuminoids as some of its predecessors, it was found to be more palatable, due, no doubt, to the saccharine carbohydrates

SOME NOTES ON GINSENG.

By P. L. Simmonds, F.L.S.

The trade in this root is of some importance from the export carried on in the North American species, *Aralia quinquefolia* (Decaisne and Planchon) *Panax quinquefolia.* That of China and Upper India is the produce of another species, *Aralia* (*Panax*) *Ginseng.*

I have not the latest statistics for reference of the American exports, but I find from the official figures that the shipments were as follows in the years named:

	lbs.		lbs.
1870,	474,316	1875,	497,487
1871,	144,221	1876,	550,424
1872,	401,260	1877,	440,406
1873,	350,141	1878,	421,395
1874,	400,619		

The export value is not given, but I have seen it stated at as much as £100,000 annually; this I fancy is too high a figure for the general average.

In China and Japan the roots of ginseng, wild and cultivated, are considered a sort of panacea or specific for all diseases. They are

bitter, tonic, stimulant, and believed to be aphrodisiac. The Chinese consider it a most powerful and life-preserving medicine, hence the enormous retail price attached to a worthless drug. It sells at 7 dollars a catty (of 1⅓ pounds) or about 28 sh. per pound. The Chinese consider the Japanese ginseng inferior to that from Mandchouria and Corea. The last is the best and whitest, selling at 30 dollars a catty.

The imports of ginseng in the port of Shanghai in 1882 were to the value of 356,309 taels, or about £89,100.

In the five years ending 1872, the average annual import of ginseng into China was 3,700 cwt. In 1887 it was rather more, 4,975 cwt., valued at £181,800. The extent of the home production there are no means of ascertaining.

Old ginseng is imported from Japan. American comes through Singapore. Bastard ginseng is worth only 80 dollars a picul (1¼ cwt.).

Resinous ginseng, received from Suchon-fu, in the province of Kiansu, is prescribed in hematesis, epistaxis and dysentery. When ginseng is taken, it is given in decoction of 1 to 12 gram, for five or six days continuously, the patient abstaining from tea for about a month. Crude ginseng is the natural dried root; the clarified is rendered translucent by steaming, skimming and drying the fresh root. The finest is reserved for the Court at Pekin, and considered more valuable than its weight in gold.

In Japan Panax Ginseng (called Nindzin) is often cultivated in the environs of Hakodata (Isle of Yeso). That collected at Ningkoola is reserved for the use of the Emperor and his family.

In Japanese medicine the roots of Aralia edulis or cordata, known as Udo, are prescribed in heart disease, uterine affections and for stopping hemorrhages. In China this species is prescribed as a tonic in menstrual, chlorotic and puerperal diseases of women. It sells at 30 dollars a picul.

In Japan there is much fraud carried on in ginseng. It is mixed with the roots of Platycodon grandiflorum, Campanula glauca, Adenophora verticillata, and a species of Convolvulus root. Another fraud consists of redrying the roots that have been used and sending them again into commerce.

Bastard ginseng is Panax amerigo, which is reclarified in Canton

for export. The sun-dried root of the Convolvulus is used as a cheap substitute for true ginseng and prescribed in cases of spermatorrhœa, debility and severe dyspepsia.

A CONTRIBUTION ON SCOPOLA CARNIOLICA.

By J. B. Nagelvoort.

It seems to me that there is no necessity for the reasoning of the *Pharm. Centralhalle* in its No. 7, 1890, p. 88, on this subject. In case the rhizoma *Scopolæ carniolicæ* contains a valuable amount *of hyoscyamine* and not in very variable quantities, the drug will be used, if not in medicine, then in chemical factories.

Prof. Flückiger wrote in his *Pharm. Chemie*, 1888, about Scopola japonica and sanctioned with his authority the presence of mydriatic alkaloid in the plant. No English or American journal had anything to do with it.

I refer to the February number of this Journal and to the *Arch. d. Pharm.*, 3, 1890, for the leading points. Desire only to offer for record a corroborative experience.

A quantity of scopola rhizome, derived from Germany through the common channels of commerce, yielded 0·5 per cent. *hyoscyamine.*

Laboratory of Parke, Davis & Co.,
Detroit, May, 1890.

TURPENTINE.

By R. Gaillard Dunwody, Ph.G.

Contribution from the Chemical Laboratory of the Philadelphia College of Pharmacy.—No. 74.

Turpentine is an oleoresin of a white semi-solid consistency which exudes from *Pinus palustris* and other species of the pine family when incisions are made. The trees are indigenous to the Southern States from Virginia to the Gulf of Mexico. Their usual height is from seventy-five to eighty feet, two-thirds of which are from eighteen to twenty inches in diameter and destitute of branches; the other third is branched having leaves of a dark green color about ten to fifteen inches in length situated at the ends in clusters of three, surrounded by long ragged sheaths. The bark is dark brown and has a revolute and longitudinally-fissured cork. Pines growing near swampy localities produce more oleoresin, and have

longer leaves of a darker green than those grown in the interior, and are distinguished as *pitch pine*, *longleaf pine* and *yellow pine*.

Turpentine is manufactured in the following manner:

Boxes, as they are called by the manufacturers, are cut into the trees from the first of December until the middle of March; usually from one to four are cut in each tree according to its size. The boxes are made twelve inches above the ground so that the lower lip is five inches, and the arched upper lip eight to ten inches above the bottom of the box, extending into the tree a short distance; they usually hold from half to one gallon. The tree is then left from two to three days, when the bark is removed about three to four or sometimes ten feet above the boxes and the tree is scraped or hacked triangularly. The instrument used for scraping is made of iron the shape of the letter L with a ball attached to the long arm, the operator taking hold just above the ball, the weight of which aids in scraping.

The oleoresin begins to run about the first of March, and flows best during June, July and August, decreasing as cool weather begins to approach. The trees have to be slightly scraped about every ten to fifteen days to remove the oleoresin which has become solidified preventing the flow.

Boxes are dipped every eight to ten days with a peculiar constructed instrument called *turpentine dipper*. The oleoresin is first put in buckets and then transferred to barrels on the wagon, their heads being removed until filled, when they are wedged on tightly; the barrels are then carried to the place of distillation.

A still made of copper is set into a brick furnace, which is from ten to fifteen feet in length, five to six feet in width and about eight feet in height. The still usually holds between fifteen and twenty barrels of the "crude." With the "crude" a little water is added, then the still is warmed so as to make the chips and straw rise to the surface to be skimmed off; a little more water is now added and the top luted on and connected with a large condensing worm placed in a large tank kept filled with cold water. When all the joints have been made tight, heat is applied strongly; the water having a lower boiling point than the oil begins to come over first bringing over a small quantity of oil which is gradually increased and is condensed and run into a barrel previously placed at the end of the

condensing worm. Water has to be added during distillation to aid the oil in coming over, also to keep the mass from becoming too thick and charring. Some manufacturers distil the "crude" without any water only what is dipped up with the "crude," but there is danger in burning the residue.

In the receiving barrel the oil having a lighter specific gravity floats on top of the water and is dipped off. This constitutes the commercial Spirits of Turpentine. The residue in the still after all of the water and oil has stopped coming over, is resin, which is run out through a faucet at the side of the still, having three strainers attached to it, into a long trough communicating with barrels which hold between three and four hundred pounds. This constitutes the commercial *resin.*

The first exudation of the tree is the best and is distinguished by the name *virgin dip*, the resin being of a light amber color, transparent, brittle, and melting at 75° C. Resin which is translucent contains too much oil and is very brittle.

The color of resin becomes darker after each exudation of the tree until it finally becomes almost black, yielding little oil and decreasing in value a great deal.

For many years North and South Carolina furnished the above products; but of late years Georgia and some of the Gulf States have been yielding a great deal.

Turpentine Oil, $C_{10}H_{16}$, is a colorless mobile liquid of an aromatic odor when freshly distilled, the specific gravity between 0·850 and 0·880, and boiling between 161° and C. 165° C. It mixes with absolute alcohol, ether, and carbon bisulphide in all proportions, is insoluble in water and slightly soluble in aqueous alcohol. It dissolves sulphur, phosphorus, fixed oils, resins and many other organic compounds. It absorbs chlorine gas with elevation of temperature sufficient to produce ignition, provided the temperature is not kept down with cold water. When iodine or nitric acid is brought in contact with turpentine oil an explosion will be produced. Hydrochloric acid gas passed into turpentine oil is absorbed with elevation of temperature, forming the compound $C_{10}H_{16}HCl$. The gas must be very dry; the drying flask as well as the turpentine oil should be kept cool (6–7° C.) and the gas should bubble through a long column of turpentine oil. A crystalline compound, known

as artificial camphor, is then usually obtained in three or four hours; another compound remains oily and is dark colored.

It is thought, of recent years, that the commercial oil of turpentine, is much adulterated with petroleum.

In order to determine how far this is the case, I obtained eight samples from the market in Philadelphia and three from manufacturers in Georgia to all of which the following tests were applied. The rotary power was determined in a 200 mm. tube, and all were found to rotate the ray of polarized light to the right before and after rectifying by distillation.

The specific gravity was taken at 15° C., before and after distillation. The temperature was carefully noted at the beginning of the boiling, and in the following table the last two columns give also the temperature at which most of the oil came over, and the temperature reached at the end of the distillation:

Samples.	Rotation		Specific Gravity.		Boiling Point.		
	before	after	before	after	Beginning.	Most oil.	End.
	Distillation.		Distillation.				
1 Commercial,	15·40	18·39	·863	·860	156°C.	164°C.	168°C.
2 "	22·51	23·80	·850	·851	158	161	167
3 "	2·60	3·90	·856	·853	156	160	166
4 "	14·45	15·10	·864	·860	158	161	168
5 "	36·64	38·62	·873	·868	158	160	170
6 "	21·82	22·55	·860	·858	155	161	165
7 "	16·42	17·40	·856	·852	159	162	170
8 "	25·52	26·40	·860	·858	158	161	168
9 From manufacturer, May, 1889,	9·45	10·50	·876	·873	156	161	165
10 From manufacturer, June, 1889,	3·85	3·90	·870	·868	157	161	166
11 From manufacturer, September, 1889,	16·20	16·80	·867	·865	157	161	167
12 Own distillation from oleoresin,	11·80	—	·869	—	—	—	—

According to Allen (Organic Analysis, ii, p. 439), the following test is of value in the detection of petroleum: Three volumes of turpentine oil with one volume of castor oil will produce a homogeneous mixture, while with petroleum the liquid separates into two layers nearly equal in volume. On trying a mixture made of

different proportions of petroleum (sp. gr. at 15° C., 0·786; boiling point between 150° C. and 160° C.; known as head light oil), it was found that as much as 65 per cent. of petroleum could be mixed without detecting it by the above test.

Absolute glacial acetic acid, 99·5 to 100 per cent. was tried and found to mix in all proportions with petroleum as well as with turpentine oil.

A mixture of 99 cc. absolute glacial acetic acid with 1 cc. of water when mixed with turpentine oil in the proportion of one to one formed a clear mixture, but with petroleum in the same proportions it would not mix. Mixtures of petroleum and turpentine oil in different proportions were found to require different amounts of the above acid for making a clear solution, as follows:

Petroleum, ...	1	2	3	4	5	7	8 cc.
Turpentine oil, . . .	9	8	7	6	5	3	2 cc.
Glacial acid, ...	40	60	80	110	150	230	270 cc.

The crude "gum" was found to be dissolved by absolute alcohol, ether, glacial acetic acid, slightly by 70 per cent. alcohol, and not at all by water.

On treating 100 grams of the original "gum" with petroleum ether boiling between 25° and 45° C. there was dissolved 81 per cent. of it; and by setting the solution aside, clear stellate crystals commenced to deposit in less than a week, and in two or three months about 20 to 25 per cent. of the solution had crystallized in the same form. The 19 per cent. of insoluble matter was treated with stronger ether which dissolved it completely; the solution was set aside and crystals deposited on the bottom and sides of the beaker after long standing; as in the previous solution none formed at the surface.

Another 100 grams of the original "gum" were treated with petroleum ether boiling between 45 and 75° C., which dissolved 97 per cent.; the solution was filtered and on standing, gradually deposited crystals in the same manner and similar in appearance to those from light petroleum ether.

The 3 per cent of the "gum" which was insoluble was dissolved in stronger ether, and upon spontaneous evaporation of the ether a resinous mass was left.

The crystals that were gotten from the different petroleum ethers

were purified by repeated recrystallization from stronger ether and submitted to ultimate analysis.

Two combustions of those from the light petroleum ether were made with the following results:

	I. Per Cent.	II. Per Cent.	Composition of Abietic Acid. Per Cent.
C,	78·37	78·50	78·57
H,	9·65	9·50	9·52
O,	11·98	12·00	11·91
	100·00	100·00	100·00

Melting point, ... 131° C.
Melting point of abietic acid given by Flückiger, ... 135° C.
Melting point of abietic acid given by Dragendorff, soften at 129° C., melts at . . . . . 144° C.

Crystals from heavy petroleum ether:

	I. Per Cent.	II. Per Cent.
C,	72·00	72·80
H,	9·75	9·50
O,	18·25	17·70
	100·00	100·00

Melting point, ... 125 to 126° C.

The crystals obtained from the heavier petroleum ether were purified by recrystallization from ether, and combustions were made at different periods in their purification without finding any change from the above composition. It is likely that several crystallizable resins are present in the crude "gum." They are worthy of much further investigation which could not be completed in the time at my disposal for this work.

QUANTITATIVE ESTIMATION OF COD LIVER OIL IN THE MALT EXTRACT WITH COD LIVER OIL PREPARATIONS.

By. J. B. Nagelvoort.

Professor J. König refers in his admirable compilation "Chemische Zusammensetzung der menschlichen Nahrungs- und Genussmittel," 3te Aufl., 1889, to 17 kinds of malt extracts. A few analyses are old and none is American. But I have no doubt that their figures

serve yet. The editor of the *Pharm. Rundschau* filled last year (*Rundschau*, 1889, p. 218) to some extent another deficiency in this branch of analytical work and quoted many analyses of infant food, lactated food, milk food and farinaceous food.

But I cannot find reports on assays of malt extracts containing cod liver oil, and offer a few of mine, considering their place to be among food analyses. I will describe first the simple method followed:

A—25 grm. of the preparation containing malt extract with cod liver oil is boiled in a suitable flask with 10 times its volume of water for an hour.

B—Remove, yet warm, to a large separator and set aside in a warm place for 24 hours; the wash waters of the flask are, of course, added to the contents of the separator.

C—The watery fluid is separated from the frothy top layer. This layer is shaken out with a large quantity (500 cc.) of boiling water and the separator again set aside in a warm place for 24 hours. This operation is repeated until the watery fluid separates clear, which takes usually 3 or 4 days, and depends for a good deal on a sharp separation.

D—After the removal of the water, I add 100 cc. of a mixture of equal quantities of ether and chloroform (this is preferable to chloroform alone, which emulsifies too easily, neither did amyl-alcohol yield good results). Agitate thoroughly, separate, collect in a tared porcelain dish, expel ether and chloroform, cool off and weigh; multiply results by 4 to obtain the percentage of the oil.

E—The oil is to be examined in regard to iodine absorption, to free and combined fatty acids, specific gravity, iodine, albumen, etc., just as a natural product, this I *consider to be as important as any assay of a crude drug.* (Compare on Standard Sperm Oil in *Druggists' Circular.*)

I determined lately the cod liver oil in a few samples malt extract with cod liver oil of American manufacture and made an emulsion myself to test the value of the process given above:

No.	Percentage of Oil claimed.	found.	Spec. Grav.
1,	40	35	—
2,	40	26	—
3,	12·5	7·5	1·32
4 (own made),	12·5	12	1·27

The difference between the percentage figures in the two columns are probably the consequence of an unintentionally inaccurate description. I think Nos. 1, 2 and 3 are erroneously reckoned by volume.

How misleading those statements are may be seen from a specific gravity determination. Cod liver oil is usually 0·923; malt extract is more variable, 1·36 is found to be an average.

My own emulsion of malt extract with cod liver oil (No. 4) had the specific gravity 1·27, and the malt extract used was 1·35. The oil contained ± 1 per cent. free fatty acids, and the malt extract had a converting power for starch (potato starch) of 1 : 10, items which I recommend for consideration when there is question of malt extract with cod liver oil *as a food.*

LABORATORY OF PARKE, DAVIS & CO.,
DETROIT, May 14, 1890.

GLEANINGS FROM THE GERMAN JOURNALS.

BY FRANK X. MOERK, Ph.G.

Cold Cream is recommended by Maercker to be made from arachis oil instead of almond oil. 4 parts white wax, 5 parts cetaceum and 28 parts arachis oil are melted on a water bath, and to the partially cooled mixture are added 4 parts more of arachis oil with constant stirring, finally incorporating 16 parts rose water, in which $\frac{1}{6}$ part borax is dissolved. To every 50 grams of the cold ointment one drop oil of rose is added.—*Pharm. Ztg.*, 1890, 121.

Creasote-glycerin.—Ten parts creasote, 20 parts alcohol, 10 parts magnesium carbonate, 40 parts glycerin and 40 parts water are rubbed together, the mixture agitated repeatedly during several days and filtered. From this preparation *Vinum Creasoti* is made by mixing creasote-glycerin 30, water 30, syrup 20, and white wine 40; *Syrupus Creasoti* by taking creasote-glycerin 20 and syrup 140; and *Aqua Creasoti* by mixing creasote-glycerin 10 and distilled water 300.—Bretter (Hygea), *Oesterr. Ztschr. f. Pharm.*, 1890, 138.

Test paper for the detection of chlorides.—A solution of potassium chromate is precipitated by silver nitrate and the silver chromate redissolved by adding a few drops of ammonia. Bibulous paper is saturated with this solution and, while still moist, drawn through a very dilute nitric acid; the dilute acid causes the precipitation of

silver chromate upon the fibres and a paper of uniform red color results. If such paper be immersed in a solution containing chlorides, the red silver chromate is converted into white silver chloride and the paper becomes colorless; 3 parts of a chloride in 10,000 parts solution can be recognized. The reagent, because of its simplicity, is advanced for industrial and household purposes.—Hoogvliet, *Pharm. Weekblad*; *Apoth. Ztg.*, 1890, 165.

Pyrrol is recommended by Prof. A. Ihl as a delicate reagent for a class of essential oils which contain derivatives of allyl-benzol, as cinnamic aldehyde, eugenol, safrol and anethol. The most delicate reaction was obtained with *oil of cinnamon.* A very dilute alcoholic solution of this oil, to which a small quantity of an alcoholic pyrrol solution and then a little concentrated hydrochloric acid is added, produces first a yellowish red color, changing rapidly to dark red and finally produces a dark precipitate. Traces of cinnamon oil and of pyrrol can be identified by this test. *Oils of cloves and pimenta* in alcoholic solution, as above, give rise to beautiful carmine colorations. *Oil of sassafras* forms a beautiful rose-red coloration. The *oils of fennel, anise* and *star-anise* give only faint reactions.—*Chemiker Ztg.*, 1890, 438.

Ethyl bromide, made by the following directions, is obtained free from ether, which is so difficult to remove. To a cold mixture of 12 parts sulphuric acid and 7 parts alcohol of specific gravity 0·816 are added slowly 12 parts powdered potassium bromide and the mixture distilled from a sand-bath. The distillate is repeatedly agitated with fresh portions of water, as long as this removes anything; then the ethyl bromide is agitated with strong sulphuric acid, allowed to stand for 12 hours, removed from the acid and shaken up with 10 per cent. solution of potassium carbonate, separated, dried by use of fused calcium chloride and distilled at a temperature of 38° C. from a water bath. Ninety-nine parts of the distillate are mixed with 1 part absolute alcohol for preservation. The preparation has a sp. gr. 1·455 to 1·459 and boils at 38 to 40° C.—Dr. C. Brunnengräber, *Apoth. Ztg.*, 1890, 130.

Cantharidin.—Of various solvents, E. Dieterich finds acetone to be the best for this substance, requiring only 38 parts at 15° C. to dissolve 1 part cantharidin; of chloroform, 65 parts are necessary; of ether, 550 parts. To make

Oleum Cantharidini.—One part finely powdered cantharidin is

dissolved by cautious heating in 40 parts acetone and then 960 parts rape oil, or better olive oil, are added. The acetone prevents the crystallization of the cantharidin.

Collodium Cantharidini.—One part finely powdered cantharidin is rubbed up with 40 parts castor oil and dissolved with the aid of heat; after cooling, 40 parts acetone and 900 parts collodium are added, and then colored by addition of 10 parts tincture of cannabis.—(Helfenberger Ann.) *Pharm. Centralhalle*, 1890, 264, and *Apotheker Ztg.*, 1890, 193.

Lanolin in powder form.—The lanolin is dissolved in ether, alcohol, chloroform or acetone, the solution mixed with magnesia and the mass dried; the powder is then mixed with starch in any desirable proportion. Instead of starch, zinc oxide, bismuth salts, barytes or talc may be used. The powder is claimed to be valuable in skin diseases, especially for chapped surfaces.—(*Il farm. ital.*) *Oesterr. Ztsch. f. Pharm*, 1890, 214.

Lanolin-Cream.—Lanolin is mixed with twenty times its weight of distilled water and warmed to 65° C.; for every 5 gms. lanolin 0·25 gm. absolutely neutral soap are incorporated. If desired, a minimal quantity of borax, dissolved in water, may be added to the preparation.—Jaffe & Darmstädter (*Pharm. Ztg.*) *Pharm. Centralhalle*, 1890, 236.

Insect Powder.—The value of insect powder is generally supposed to be due to some volatile constituent; it is therefore frequently put up in well-closed containers, and considerable stress laid upon its having a decided odor, if effective. E. Hirschsohn, examining a sample of the powder which for five years had been kept in a paper box, found it to be entirely odorless, but as effective as when purchased. A number of fresh samples of Persian and Dalmatian powders, which were tested and found to be effective, were heated to 120° C. for eight hours, but had not lost their activity, although they were completely deprived of odorous principles. Thinking that the value depended upon the presence of acid resin and this gradually becoming neutralized by absorption of ammonia from the atmosphere might cause deterioration, experiments were made in which the powder was mixed with alcoholic ammonia to alkaline reaction and allowed to dry at ordinary temperature; when dried, the powder showed the original activity

neither being increased nor decreased. Of various solvents, water gave an inert extract upon evaporation; 95 per cent. alcohol, 70 per cent. alcohol, chloroform, ether, benzol, carbon disulphide and petroleum ether all extracted the active constituent, and the residual powder was inert. With the exception of the carbon disulphide extract, which was neutral, the extracts were acid to litmus paper. If the active extractions be mixed with some inert powder, like powdered chamomile, the product acts like the original powder. Seventy per cent. alcohol will remove from the petroleum-ether extract an oily resinous mass, which, placed upon the tongue, produces a sensation similar to an extract obtained from the pyrethrum root; these substances must be different, however, as pyrethrum possesses no vermin-destroying properties.—*Pharm. Ztschr. f. Russl.* 1890, 209.

Detection of thiosulphate in bicarbonate of sodium: 5 gm. bicarbonate of sodium and 0·1 gm. calomel are triturated with 2 drops of distilled water when, if the impurity is present, the mixture will be colored gray, due to formation of mercuric sulphide.—F. Musset, *Pharm. Centralhalle*, 1890, 230.

Iodine may be purified as follows: A convenient quantity of iodine is placed in a beaker and covered with a concentrated solution of iodide of potassium, the beaker covered with a watch crystal and heat applied until the iodine melts; the melting point of iodine is below the boiling point of the iodide of potassium solution and, hence, the operation proceeds nicely. After the beaker and contents become cool the iodine-cake is removed, broken up and after draining in a funnel, washed with water. The product is free from chlorine and is easier obtained in this condition than by resublimation; the mother liquor is reserved for future operations.—F. Musset, *Pharm. Centralhalle*, 1890, 230.

Cassia oil may be tested for likely adulterations by the following simple tests: (1) Agitation of the suspected sample with three volumes of petroleum ether sp. gr. 0·650 should neither produce an increase nor decrease of the volume of oil taken; a decrease in volume would indicate the presence of other essential oils, fixed oils, resin or kerosin; an increase, the presence of larger quantities of castor oil. (2) The clear petroleum-ether layer of the above test agitated for several minutes with copper hydrate (obtained by precipitating copper sulphate solution with solution of potassium

hydrate, washing and drying at ordinary temperature) should give no blue or green filtrate; absence of colophony or copaiva (3) One volume of the oil with three volumes of 70 per cent. alcohol at 15° C. should give a clear or only opalescent solution; should a turbidity or separation take place, the presence of petroleum, fixed oils, other volatile oils or larger quantities of colophony would be indicated. (4) The above 70 per cent. alcoholic solution mixed drop by drop with ½ volume of an alcoholic solution of lead acetate (70 per cent. alcohol saturated at ordinary temperature with lead acetate) should produce no precipitate; absence of colophony or similar resins. —E. Hirschsohn, *Pharm. Ztschr. f. Russl.*, 1890, 225 and 241.

Jalap resin.—Prof. Flückiger accounts for the noticed decreased yield of jalap resin in the last twenty years by the partial extraction of the resin by means of alcohol before the jalap is placed upon the market (AM. JOURN. PHARM., 1890, 141). Bellingrodt has observed no diminution in the yield of jalap resin; he publishes results of assays made in 1851–1854 with an average yield of 11·58 per cent. and the average for the last thirty years he gives as 11·60 per cent. E. Dieterich finds the yield for the last two years to have been 7·1, 7·7, 6·6 and 8·1 per cent. confirming Flückiger's statement. These last figures have reference to officinal resin and not to total extract soluble in alcohol; in the last lot examined by him the total amount soluble in alcohol was 14 per cent., while the officinal resin was only 8·1 per cent. (*Helfenberger Ann.*) *Chem. Ztg. Rpt.*, 1890, 116.

Pyoktanin, a new antiseptic introduced by E. Merck, is one of the aniline dyes which for a long time have been known to destroy bacteria and bacillus of all kinds. The violet aniline dyes in solutions 1 : 30,000 retard the growth of bacteria and in 1 : 2,000 to 1 : 1,000 prevent putrefaction. Two dyes are at present put upon the market, a *blue* one, Pyoktanin cæruleum and a *yellow* one Pyoktanin aureum, the former used for surgical, the latter for ophthalmic purposes. Of each can be obtained, dusting powders 1 and 2 per cent., ointments, pencils, pastilles for making solutions, and dressings 1 per cent. The experiments leading to the discovery of the value of these preparations were made by Prof. Stilling of Strassburg.—*Pharm. Ztg.*, 1890, 261.

Penghawar Djambi is revived as a hemostatic by Nolténius (*Provinc. Med. Jour.*). It is used mixed with cotton, in tampons. It is very elastic.

CHEMICAL NOTES.

By Henry C. C. Maisch, Ph.G., Ph.D.

Test for purity of quinine sulphate.—E. Hirschsohn (*Pharm. Zeitschr. f. Russland*, 1890, xx, p. 1) gives the following method for determining whether sulphate of quinine is chemically pure: 0·2 gm. of the salt is well shaken with 5 cc. of a mixture of 30 pts. by volume of petroleum ether (sp. gr. 0·680) and 70 pts. of chloroform and filtered immediately. To the perfectly clear filtrate three volumes of petroleum ether are added. Pure quinine sulphate yields a clear solution while all other cinchona alkaloids show opalescence or give precipitates. According to the author, 0·1 per cent. of the accompanying alkaloids can still be detected by this method.

On Tiliacin.—P. A. Latschinow (8th Congress of Scient. and Physic. in St. Petersburg; through *Chem. Zeit.*, 1890, p. 126) found in the linden (Tilia) leaves a glucoside, tiliacin, which can be split into glucose and *tiliaretin*. The latter is decomposed further into *anisic acid* and other bodies not further studied. The leaves of *Cirsium arvense* seem to contain also tiliacin while the glucoside of *Phlox paniculata* differs as well from tiliacin as from hesperidin.

Ethereal oil of Daucus Carota.—Schimmel & Co. prepare this oil by treating the fruit with high pressure steam. According to M. Landsberg (*Arch. Pharm.*, 1890, ccxxviii, 85) the oil is yellow, of a pleasant carrot odor and pungent taste, is acid to litmus paper and easily soluble in alcohol, ether, glacial acetic acid, chloroform, etc. Sp. gr. at 20° C. 0·8829. The chemical constituents are (1) a terpene boiling at 159–161° C., and belonging to the pinene group (Wallach), and (2) an oxygenated portion $C_{10}H_{18}O$ closely allied to cineol and can be regarded as a monohydrated terpene. Acetic acid was noticed in small quantity.

Ethereal oil of Massoy bark.—Schimmel & Co. put on the market an oil under the above name, which is obtained from a lauraceous plant of New Guinea. The oil is limpid, perfectly clear, yellow and resembles cloves in odor. According to E. F. R. Way (*Arch. Pharm.*, 1890, ccxxviii, p. 22) the composition is as follows: (1) a terpene $C_{10}H_{16}$, named *massoyene* which does not correspond to any hydrocarbon described by Wallach; (2) *safrol*, by oxidation with $KMnO_4$ the odor of piperonal was distinctly noticed; (3) *eugenol* of the formula $C_6H_3(CH_2CH=CH_2)OCH_3, OH$; (4) a small quantity of creasote-like bodies.

On Taxine. — A. Hilger and Fr. Brande (*Ber. d. Deutsch. Chem. Gesell.* 1890, 464), after reviewing the literature on the examination of *Taxus baccata*, describe their work on the ethereal extract from which they isolated the alkaloid by the process of Marmé (Medicin. Centralb. xiv, 97). Leaves and fruits were extracted several times with ether, the latter recovered, the residue treated a few times with acidulated water and the alkaloid precipitated with ammonia. The powder was dried in a desiccator over sulphuric acid. It is easily soluble in alcohol and ether, but could not be obtained in a crystalline state. Concentrated sulphuric acid gives a red color, while hydrochloric, nitric and phosphoric acids give none. The most of the alkaloidal reagents yield amorphous precipitates, platinum and gold chlorides give no precipitates; with Froehde's reagent a red violet color was obtained. The salts prepared are the following: acetate, oxalate, tartrate, chloride, sulphate and the platinum and gold double salts. The formula of the alkaloid is $C_{37}H_{52}O_{10}N$.

Chemical characterization of the constituents of Cetraria islandica. —A. Hilger and O. Buchner (*Ber. d. Deutsch. Chem. Gesell.* 1890, p. 461) use the following methods for isolating *lichenstearic* and *cetraric acids*. The lichen, reduced to a coarse powder, is completely extracted with petroleum ether and this recovered. The dried residue is stirred into boiling water, and to the boiling mixture sodium bicarbonate added in small quantities, so that a part of the residue remains undissolved. The solution, while hot, is filtered and supersaturated with hydrochloric acid. The precipitate is pressed between bibulous paper and recrystallized from petroleum ether, using animal charcoal for decolorizing. Further purification is accomplished by crystallizing from boiling alcohol. The acid is a white voluminous mass, consisting partly of small prisms, which, however, soon fall into glossy leaflets, melts at 120° C., soluble in alcohol, chloroform, ether, benzol, petroleum ether and nearly insoluble in water. By combustion and analysis of the silver, barium and lead salts and of the chloride the composition $C_{43}H_{76}O_{13}$ was determined for lichenstearic acid. Cetraric acid was obtained by Knop and Schnedemann's method (*Lieb. Ann.* lv, 150), by boiling Iceland moss for quarter of an hour with alcohol and potassium carbonate, precipitating with hydrochloric acid, extracting with petroleum ether and treating the residue to remove coloring matter with

equal volumes of ether and turpentine. The acid was not obtained in a crystalline form, but as a white, bitter powder, barely soluble in water, soluble in alcohol and difficultly soluble in ether and petroleum ether. The melting point could not be obtained, as the acid decomposes below 200° C. A combustion and analysis of silver and barium salts give the formula $C_{30}H_{30}O_{12}$, and, like the above acid, show it to be dibasic.

The use and change of alkaloids in some seeds during germination.—Edouard Heckel (*Compt. rend.*, 1890, cx, 88) has examined the behavior of strychnine, brucine, daturine and coffeine during germination. For *coffeine* the seeds of *Sterculia acuminata* were used. The fresh seeds contained in 100 gm. 2·37 gm. coffeine; after one year the cotyledons contained only 1·072 gm., after two years, 0·70 gm. and after three years 0·21 gm. During the time the alkaloid disappeared chlorophyl and potassium nitrate, which are never present in the recent seeds, made their appearance. For the alkaloids of the pyridine series *Strychnos Nux vomica* and *Datura Stramonium* were used. In a relatively short time (2–5 months depending on the size of the seeds) all the alkaloids in the endosperm had been converted into more assimilable compounds. That this change is produced by the embryo was shown by removing the same and placing the seeds in moist earth when the endosperm retained its entire amount of alkaloids. In *Physostigma venenosum* the eserine disappears in the cotyledons during germination, and the new compounds are transported into the young plant. Eserine disappears also when the embryo is removed and the seed is then planted. From his experiments the author draws the conclusion that the alkaloids act as reserve material for the nourishment of the young plant and must undergo a change in chemical constitution to become assimilable.

ABSTRACTS FROM THE FRENCH JOURNALS.

TRANSLATED FOR THE AMERICAN JOURNAL OF PHARMACY.

DANGER IN CRYSTALLIZED ACONITINE.—The *Journal de Pharmacie d' Anvers* for February reports a case of death after ingesting two pills of a quarter of a milligramme each, of crystallized aconitine. They were prescribed by a physician. It is now two years since the *Société de Pharmacie de Paris* recommended that pills of this substance should not contain more than one-tenth of a milligramme

of this substance. A list was at that time read, of several deaths having occurred after taking a single granule, one-quarter of a milligramme of the crystallized principle.

EMULSION OF SALOL.—M. Jouisse proposes the following: Salol, 4 gm.; gum arabic, 4 gm.; gum tragacanth, 20 cgm.; tincture of tolu, 10 gm.; simple syrup, or syrup of tolu, 30 gm.; distilled water, q. s.; the simple syrup may be replaced by aromatic syrups. The tincture of tolu should be first mixed with the water and, after partial precipitation, passed through a cloth filter. M. Jouisse adds sufficient water to give 50 cgm. of salol to a tablespoonful. Four to six tablespoonfuls of the emulsion may be given daily, and the number gradually increased to eight. The author thinks that in cancer and ulceration of the stomach, the use of this emulsion will make the use of Faucher's tube and "washing-out solutions" unnecessary.—*Nouv. Rem.*, April 8.

LABORDE'S ANTISEPTIC SOLUTION.—This is composed of: Bichloride of mercury, 25 cgm; chloride of sodium, 1 gm.; sulphate of copper, 1 gm.; tartaric acid, 50 cgm.; "soluble blue," 1 cgm.; distilled water, 10 gm.; glycerin, 10 gm.; in using, add 1 litre of water. This was proposed as a substitute for Budin's "Antiseptic powders for midwives" (See AMERICAN JOURNAL OF PHARMACY, 1890, p. 180), on the ground that it was a safer preparation than Budin's and of equal antiseptic power. The sulphate of copper contained in it would act, said M. Laborde, as an emetic. But the Academy of Medicine finally adopted Budin's powder.—*Répert. de Phar.*, March 10.

PERMANGANATE OF POTASSIUM PILLS.—Several Parisian pharmacists have experimented of late in the preparation of these pills, but for the most part they have met with indifferent success. M. Vincens, however (*Nouv. Rem.*, Apr. 8), claims to have succeeded. His formula is as follows: Permanganate of potassium, 1 gm.; pure clay, 5 gm.; distilled water, 15 to 30 drops. Macerate the clay with q. s. of water to make a soft paste, and incorporate the permanganate of potassium. The pills are homogeneous, smooth, and break up readily in the stomach. They should be dried slightly and rolled in powdered talc. They are not (says the author) attacked by organic matters, and the salt does not decompose. M. Vincens adds that the following—a longer method—gave an equally good result: Silicate of potassium, 2 gm.; distilled water, 1·50 to 2 gm.; powdered

talc, q. s.; permanganate of potassium finely pulverized, 1 gm. The silicate was well mixed with the water and q. s. of talc was added to make a soft paste. In a few moments the mass became of proper consistence for division. The author gave the preference to the former preparation, as the silicate pills were not so readily soluble, and showed slight cracks on their surfaces. [In England Mr. Martindale, in 1884, introduced kaolin combined with soft paraffin as a suitable excipient; the same has been used in this country, also fuller's-earth, pipeclay, resin cerate, simple cerate and others.—*Trans.*]

Simple Apparatus for Making Sulphuretted Hydrogen.—Remove the cork and piston of a glass syringe, fill it to within a third of the large opening with morsels of sulphide of iron of about the size of a pea, and fit to the same orifice, a rubber tube connecting with a glass syphon. To the small opening of the syringe attach a piece of rubber tubing connecting with a glass tube furnished with a stop-cock. The latter being opened, the syringe is placed in a conical glass vessel containing a sufficient quantity of hydrochloric acid to cover the iron salt. The gas commences at once to form. To stop the disengagement of gas close the stop-cock The syringe is then placed in a jar of pure water, and, the cock being again opened, the apparatus becomes filled with water and chloride of iron is dissolved.—*Bull. de la Soc. de Phar.*, Brussels, Feb. 15.

Artificial Malachite.—M. Fouqué lately exhibited at the *Académie des Sciences* a specimen of M. de Schulten's product, obtained by heating for eight days in a water-bath, a solution of carbonate of copper precipitated by one of carbonate of ammonia. As the ammonia volatilizes the carbonate of copper is deposited in a green crystalline mass on the sides of the vessel. This becomes slowly covered with small, green crystals of malachite which have the same chemical composition as the natural mineral.—*Répert. de Phar.*, March 10.

Antifebrin is liable to produce unpleasant symptoms of cerebral excitement and even hallucinations in aged and weak persons. For this reason Dr. Stein advises (*Prag. Medic. Wochens.*, Jan., 1890) to give antifebrin to such patients in doses beginning with 0·05 to 0·10 gm.

Ammonium picrate is of no value as a substitute for quinine, according to Dr. H. M. Clark (*The Lancet*, Feb. 15, 1890), because it does not lower the temperature. It may be given in ague on the febrile days, the dose being six grains in 24 hours, which may be taken without producing unpleasant symptoms.

DIRECT PRODUCTION OF SODIUM CARBONATE AND CHLORINE FROM SODIUM CHLORIDE.[1]

By W. Hempel.

In the electrolysis of metallic chlorides, which give readily soluble decomposition-products, the latter are further decomposed as soon as the quantity produced reaches a certain limit. When, however, the compound produced is only sparingly soluble, this secondary decomposition does not take place, and the whole strength of the current is utilized. Potassium chloride and sodium chloride, for example, can be converted into the corresponding chlorate; calcium chloride and magnesium chloride can be decomposed into chlorine and a solid hydroxide, by employing a diaphragm.

Marx has shown that alkaline chlorides can be directly converted into chlorine and an alkaline hydrogen carbonate, by passing carbonic anhydride through the solution during electrolysis, metal and liquid diaphragms being employed.

The author, who has been engaged independently in making similar experiments, describes, with the aid of diagrams, an apparatus in which sodium chloride can be directly converted into chlorine and crystalline carbonate. The cathode is a perforated iron disc, the anode a perforated carbon disc, the perforations being about 4 mm. in diameter, and bored in an upward direction to allow the gas to escape freely. A disc of ordinary asbestos-paper, placed immediately between the carbon and iron discs, serves as a diaphragm. The three discs are placed in the centre of a vessel made of porcelain and glass, which is thus divided into two chambers, each of which is provided with a conducting tube, in one case for carbonic anhydride, in the other for chlorine. If sodium chloride is added from time to time through a suitable aperture, and the water which is removed with the crystalline carbonate is replaced, the apparatus can be worked continuously, sodium carbonate and almost chemically pure chlorine being obtained.

A tension of 3·2 volts is required for decomposing the sodium chloride, and a tension of 2·5 volts to overcome the polarization current; but the latter has only a slight tension when both electrodes

[1] *Berichte* XXII, 2475–2478. Reprinted from *Jour. Chem. Society*, January, 1890, p. 10.

are made of carbon. With a current of 1·73 amperes 0·93 gram of chlorine per hour was produced, so that if a dynamo were employed it should give 64·5 grams of chlorine and 259·8 grams of Na_2CO_3 + 10 H_2O per horse-power-hour.

BASES CONTAINED IN THE YOUNG SHOOTS OF SOLANUM TUBEROSUM.[1]

By R. Firbas.

The two products, the one crystalline and the other amorphous, obtained in the preparation of solanine from the young shoots of the potato, are now shown contrary to earlier views, not to be chemically identical. The author names the crystalline compound *solanine*. It has the formula $C_{52}H_{93}NO_{18}$, $4\frac{1}{2}H_2O$, and when dried at 100° appears to be anhydrous, or to contain only half a molecule of water of crystallization. From a solution in 85 per cent. alcohol, it crystallizes in colorless needles, which melt at 244°, are almost insoluble in ether and alcohol, and are readily dissolved by dilute hydrochloric acid. *Solanidine hydrochloride*, $3(C_{40}H_{61}NO_2,HCl)$ HCl + H_2O or $1\frac{1}{2}H_2O$, is obtained by boiling solanine with a 2 per cent. solution of hydrochloric acid. It is a slightly yellow powder which is only very sparingly soluble in water, and carbonizes without melting when heated to 287°. Simultaneously with solanidine hydrochloride a sugar is formed in accordance with the equation $C_{52}H_{93}NO_{18} = C_{40}H_{61}NO_2 + 2C_6H_{12}O_6 + 4H_2O$.

The amorphous substance obtained simultaneously with solanine, and which the author names *solanëine*, has, when dried at 100°, the formula $C_{53}H_{87}NO_{13}$, or $C_{52}H_{83}NO_{13}$. The loss of weight on heating the air-dried compound at 100° corresponds with the formula $C_{52}H_{83}NO_{13}$ + $3\frac{3}{4}$ or $4H_2O$. It is a yellow, horny, perfectly amorphous substance, melting at 208°, is more soluble in an 85 per cent. solution of alcohol than is solanine, and on treatment with hydrochloric acid yields solanidine and a sugar in accordance with the equation $C_{52}H_{83}NO_{13} + H_2O = C_{40}H_{61}NO_2 + 2C_6H_{12}O_6$.

The sugar obtained by the hydrolysis of solanine and solanëine forms a yellow, amorphous mass with a caramel-like odor, dissolves readily in water and wood-spirit, and has a specific rotatory power of $[\alpha]_D = +28·623$. With phenylhydrazine hydrochloride and sodium

[1] *Monatshefte*, X, 541–560. Reprinted from *Jour. Chem. Soc.*, 1890, p. 75.

acetate in aqueous solution, it forms a glucosazone melting at 199°, and resembling the compounds obtained similarly from dextrose, levulose, and several other sugars. With nitric acid it gives no recognizable trace of mucic or saccharic acids. The general behavior of the sugar points to the conclusion that it is some other sugar than dextrose, or a mixture of sugars.

Solanidine has the formula $C_{40}H_{61}NO_2$ or $C_{41}H_{65}NO_2$, and is obtained from alcoholic solution in amorphous masses interspersed with needles melting at 191°. It dissolves readily in hot alcohol, with difficulty in ether, and on treatment with excess of dilute sulphuric acid forms a sulphate, $3(C_{40}H_{61}NO_2,H_2SO_4),H_2SO_4 + 8H_2O$; this crystallizes in scaly plates melting at 247°, and is readily soluble in water. Its diacetyl-derivative, $C_{40}H_{59}O_2NAc_2$, crystallizes in needles melting at 203°.

CONVENTION FOR THE REVISION OF THE PHARMACOPŒIA OF THE UNITED STATES.

The Convention met in the Law Lecture Hall of the Columbian University, May 7, and at noon was called to order by the President of the Convention of 1880, R. Amory, M.D. A Committee on Credentials was appointed, consisting of three each representatives of the medical and pharmaceutical delegates, and of one representative of the Government services. While the Committee was engaged in examining the credentials, the Convention took a recess until 2.30 P. M., and in the interval the members paid their respects to the President of the United States.

After reassembling, the Convention received and adopted the report of the Committee, according to which delegates had been accredited by the American Pharmaceutical Association, the three medical departments of the U. S. service, and about 48 medical and 56 pharmaceutical colleges and incorporated societies entitled to representation under the rules adopted in 1880. Several other organizations had sent credentials not accompanied by proper vouchers. These were disposed of by admitting the delegates after verbal proof had been received that these bodies were duly incorporated. Among the delegates present were several ladies. A number of gentlemen interested in pharmacopœial work, who were present, though not as delegates, were accorded the privileges of the floor. A committee was then appointed, consisting of one member from each delegation, charged with the nomination of officers of the Convention, and of the members of the Committee of Revision and Publication.

At the second session, held Thursday morning, the Nominating Committee reported the following:

For Officers of the Convention:

For President, Horatio C. Wood, M.D., Philadelphia (Philadelphia County Medical Society).

For Vice-Presidents, W. S. Thompson, Washington, D. C. (National College

of Pharmacy); D. W. Prentiss, M.D., Washington (National Medical College); J. M. Flint, Washington (U. S. Navy); A. E. Ebert, Ph.G., Chicago (American Pharmaceutical Association), and Prof. W. M. Searby, San Francisco (California College of Pharmacy).

For Secretary, Hobart A. Hare, M.D., Philadelphia (University of Pennsylvania).

For Assistant Secretary, G. H. C. Klie, St. Louis (Missouri Pharmaceutical Association).

For Committee of Revision and Publication:

Prof. Roberts Bartholow, M.D., Philadelphia (Jefferson Medical College).
Prof. P. W. Bedford, Ph.G., New York (New York College of Pharmacy).
F. A. Castle, M.D., New York (New York Academy of Medicine).
Prof. C. A. Curtman, M.D., St. Louis (Missouri Medical College).
N. S. Davis, Jr., M.D., Chicago.
Prof. C. L. Diehl, Ph.M., Louisville (Louisv. Coll. Phar. and Ky. Phar. Assoc.).
R. G. Eccles, M. D., Brooklyn (N. Y. State Pharmac. Assoc.).
R. T. Edes, M.D., Washington, D.C. (Medical Society of the Dist. of Columbia).
J. M. Flint, M.D., Washington, D. C. (U. S. Navy).
John Godfrey, M.D., Washington, D. C. (U. S. Marine Hospital Service).
Prof. W. R. Gregory, M.D., Buffalo (Buffalo College of Pharmacy).
C. S. N. Hallberg, Ph.G., Chicago (Chicago College of Pharmacy).
Prof. J. M. Maisch, Phar.D., Philadelphia (Phila. College of Pharmacy).
Prof. G. F. H. Markoe, Ph.G., Boston (Massachusetts Pharmac. Assoc.).
W. M. Mew, M.D., Washington, D. C. (U. S. Army).
Chas. Mohr, Ph.D., Mobile, Ala. (Alabama Pharmaceutical Association).
Prof. O. Oldberg, Phar.D., Chicago (Illinois College of Pharmacy).
Prof. F. B. Power, Ph.D., Madison, Wis. (University of Wisconsin School of Pharmacy).
Prof. J. P. Remington, Ph.M., Philadelphia (Phila. Coll. of Pharmacy).
Chas. Rice, Ph.D., New York (New York College of Pharmacy).
Prof. H. H. Rusby, M.D., Newark, N. J. (New York Coll. of Pharmacy).
Prof. L. E. Sayre, Ph.G., Lawrence, Kan. (Kansas Pharmac. Assoc.).
Alfred B. Taylor, Ph.M., Philadelphia (American Pharmac. Assoc.).
Prof. O. A. Wall, Ph.G., M.D., St. Louis (St. Louis College of Pharmacy).
Thos. F. Wood, M.D., Wilmington, N. C. (North Carolina Medical Society)

All these nominations were approved by the Convention, and subsequently the President was added to the Committee of Revision as a member *ex officio*.

The Secretary of the Committee of Revision of 1880, Prof. Bedford, read a report giving a résumé of the work done by that Committee during the past ten years. Mr. Doliber, Treasurer of the same Committee, presented his report showing that the income of the Committee had been from the sale of about 17,000 copies of the Pharmacopœia $6,797, and from interest $521.17, making a total of $7,317.17; the expenses amounted to $4,438.67, leaving a balance on hand amounting to $2,878.50.

The reports were accepted, and the balance on hand was directed to be paid over to the present committee.

The Convention then proceeded to the consideration of the draft submitted

by the retiring Committee, of the general principles which are to guide the Committee in their work of revision, and which was finally adopted as follows:

(1) *General Directions.*—The Committee of Revision, etc., is directed to follow the general principles adopted by the Convention in 1880, so far as the same are not modified or superseded by special directions in the succeeding paragraphs.

(2) *Assay Processes for Drugs.*—It is recommended that assay processes be appended to the descriptions of the more energetic or otherwise important drugs containing active principles, provided the therapeutic value of the drug depends upon the amount of these principles, and provided, also, that these principles can be assayed and identified with reasonable accuracy and without requiring complicated processes. The Committee may attach a note stating the *usual* percentage of these active principles in good commercial samples of the drug, and, if it be found feasible, it may attach a requirement that the drug shall not be used unless it conforms to these limits.

(3) *Assay Processes for Galenical Preparations.*—The Committee may attach assay processes to such galenical preparations as fluid extracts, tinctures, etc., but it shall omit requirements of a definitive strength or percentage of active principles except in the case of drugs for which an upper or lower limit, or both, of active principles is prescribed.

(4) *Assay Processes for Opium and Cinchona.*—In the case of opium and cinchona the Committee shall adopt such processes of assay as will be found to yield the largest proportion of the desired active principles with greatest uniformity and with least manipulative difficulty, the object of these processes being to ascertain how much of the respective principles can practically be extracted.

(5) *Description of Chemicals and Tests.*—In the case of chemicals, the degree of purity, or the allowable percentage of impurity, shall be prescribed as closely as practicable. The standard of purity shall be set as high as practicable for legal enforcement, but not beyond a point reasonably attainable by the manufacturer without subjecting any particular product to unnecessary cost through the enforced removal of some harmless and insignificant accidental impurity.

(6) *Chemical Formulas.*—Chemical formulas shall be given only in the new notation.

(7) *Proprietary or Patented Articles.*—No substance which cannot be produced otherwise than under patented processes, or which is protected by proprietary rights, shall be introduced into the Pharmacopœia.

(8) *Nomenclature.*—In the choice of titles of official articles it is recommended that convenience, established custom, and considerations of safety against mistakes, through similarity of or changes in names, should outweigh purely theoretical considerations or scientific preciseness.

(9) *Specific Gravity.*—It is recommended that the Committee define the exact degree of temperature of the standard by which other specific gravities are to be determined, and the specific gravities of the various officinal liquids shall be determined and stated by the Committee, so far as it may be practicable, on the basis of the established temperature and other conditions of the standard.

(10) *Weights and Measures.*—It is recommended that the next Committee of Revision be instructed to direct solids to be weighed and liquids to be measured, *except in such cases as the Committee may find advisable, and that the metric system be employed for that purpose.*

(11) *General Formulas.*—It is recommended that general formulas be introduced for fluid extracts *and such other preparations as have duplicate processes,* and that the general formula to be followed in any particular case be merely indicated by reference.

(12) *List of Reagents, Tables, etc.*—The tables and list of reagents authorized or prescribed for the Pharmacopœia of 1880 shall also be inserted in that of 1890, with such corrections or substitutions as may be required to bring them up to date.

(13) *Publication of the Pharmacopœia.*—It is recommended that the Committee of Revision, etc., which will be elected by the Convention of 1890, be authorized to print and publish, on its own account, the Seventh Decennial Revision of the Pharmacopœia of the United States of America.

(14) *Date for the Pharmacopœia to go into effect.*—The Committee shall announce in a conspicuous place, in the printed work, a definite date, reasonably distant from the actual date of publication, when the new Pharmacopœia is intended to go into effect, and to supersede the preceding one.

(15) *Compensation of Experts.*—It is recommended that the Convention of 1890 instruct the Committee of Revision, etc., to pay the experts and others employed in the preparation and publication of the Seventh Decennial Revision of the Pharmacopœia.

The discussion on these propositions, as might be expected, consumed much time, and in regard to some of them the views were extremely divergent. This was more particularly the case with propositions 2, 3, 4 and 10, of which the former three embrace the question of standardization; these after a lengthy debate were referred to the Committee of Revision without special instruction, after the word *usual* had been inserted in the second section in place of the word average. It will be observed that 2 and 3 are not mandatory.

Proposition 11 was modified by the addition of the words italicized above, apparently with the view of giving the direction a wider application.

When the 13th proposition was under consideration, an amendment was offered by Mr. Schafer, of Iowa, that the publication of the next Pharmacopœia be entrusted to a separate Committee of Five, the better to secure the entire profits expected to accrue from the sale of the work. The amendment, however, was voted down, as was also a substitute offered by Prof. Remington, with the object of making the instructions to the Committee still more definite than contained in the original draft which was finally adopted.

Proposition 10 had been postponed until the fourth session held on Thursday forenoon, when Prof. Mendenhall, upon invitation, addressed the Convention upon the subject of weights and measures and showed that those in use in the United States—with the exception of the metric system—were never legalized by Congress, but were adopted by regulation of one of the departments, and in several states by local legislation. He explained also the construction of the metric standards as now in the possession of the different governments, and showed models of those recently received from France.

When the discussion on proposition 10 was opened, it soon became apparent that the views of the members on the subject differed widely. While quite a number strongly favored the retention of parts by weight, others were strongly opposed thereto upong rounds whichdid not differ from the arguments used ten and more years ago. But those who favored the use of measures for liquids, though they appeared to be in the majority, were by no means united upon the kind of measure, since nearly all seemed to favor the closest and most simple relation between measures and weights; the metric system offered the only solution of the difficulty, and when the amendment recommending that system for adoption was put to vote, there was not a single nay heard in opposition. In going back to the use of measures of capacity, however, it was recognized that certain liquids, like acids, viscid oils, etc., are better adapted for weighing; and discretion was given to the Committee in this respect. The italicized portion of Section 10, as printed above, comprises the two amendments referred to.

After the adoption of the "principles" as a whole, a proposition was made and adopted, that at a suitable time preceding the next Convention in the year 1900, the President appoint a Committee of Seven to examine all the credentials prior to the day of meeting, so as to save much valuable time for the Convention. Some change has been made in regard to representation in the next Convention, whereby societies incorporated for not less than five years will be entitled to send delegates.

A motion made by Mr. Ebert was adopted that the sum of $1,000 be paid to Dr. Rice for his services as Chairman of the Committee of 1880, but Dr. Rice declined the compliment.

After final adjournment, most of the members participated in an excursion to Mount Vernon.

The Committee of Revision and Publication has effected an organization by electing Dr. Rice, Chairman; Prof. Remington, Dr. Edes and Prof. Dr. Curtman, Vice-Chairmen; Dr. Castle, Secretary, and Dr. Flint, Treasurer.

MINUTES OF THE PHARMACEUTICAL MEETING.

PHILADELPHIA, May 20, 1890.

Mr. Alonzo Robbins in the chair.

The minutes of the last meeting were read, and no corrections being required they were approved.

Mr. Beringer on behalf of Mr. Chas. E. Hires presented a lithographic reproduction of some photographs of the *vanilla plant* and the methods adopted in preparing the fruit for the market. A few notes on this subject, prepared by Mr. Hires were read, of which the following relate to the preparation of vanilla for the market.

"The beans are gathered in the fall—November, or early December, at which time the beans are nearly mature, and the process of curing commences at once, and takes from three to four months to complete, when the task of canning and bundling is proceeded with, which takes a month or two longer, so that the crop does not get to market until the spring or summer of the next year. The crop of 1890 will actually be the crop of 1889. In the early summer, the vanilla plant bears a beautiful white flower, which grow in clusters like the

lilac, of the most powerful perfume, somewhat resembling the scent of the tuberose. When first taken from the vine the fruit is often from two to three inches in circumference, but when cured, it is shriveled and nearly the size of a pipe stem, entirely unrecognizable from the green pod. When the weather is clear these beans are placed in rows on mats to dry, and are taken in in the evening, and are placed in caldrons and covered with blankets, where they go through the sweating process at night. At this time an oil oozes from the bean, which is carefully collected and preserved for future use when the beans are being bundled. They continue to go through this process of sweating and drying until the proper color and flavor is developed, and it is only those with long experience and thorough knowledge of the process, who are capable of producing the most fragrant and delicious flavor of the bean. As soon as the beans are sufficiently cured they are sorted in lengths, bundled, and packed in tins, four to six tins to the case, which are then shipped to our market. The bundles are made up by hands who have become dexterous in handling vanilla, and the oil which is collected from the sweating process, is then used, each bean being rubbed separately with the oil, so that the bundling, as well as the care and time required in their curing, is very tedious."

The subject of *Standardization* of drugs which formed a prominent feature of the meeting last month was called up, especially as to its treatment in the National Convention for revising the Pharmacopœia. The resolutions, relating to this matter, as adopted, were read.

Prof. Trimble read a paper upon a new material for the *adulteration of spices*, by Mr. Frank A. Hennessy, a member of the last graduating class; it was accompanied with specimens of the materials used in this nefarious trade. In reply to an inquiry as to whether the microscope could not detect such frauds in ground pepper, Prof. Maisch stated that the presence of starch could be shown, but since in the baking of the biscuits they had been subjected to a moist heat, nearly all of the starch grains would have been ruptured and thus the special kind of starch used in the adulteration could not be detected, while the small starch grains existing in pepper would still be intact. It had been suggested that a close approximation to the character of a pure pepper could be made by determining the ash or oleoresin, or both, the variations of which had been ascertained by a number of analyses; but even these could be imitated to some extent, leaving however such fraudulent mixtures destitute of the proper amount of piperine.

It was asked if the turmeric added to most of the *ground mustard* of commerce could be called an adulteration; this was answered by stating that any foreign matter was an adulterant in the strict sense, and yet mustard flour free from turmeric, if offered for sale, would in most cases be rejected and denounced as inferior by the public; its use cannot be objected to on hygienic grounds as it is but slightly stimulant and the amount used is too small to produce any harmful effect even if it were much more active.

A paper upon an *Indian Food Plant* was read by Prof. Trimble and listened to with much interest. Professor Maisch remarked that it was singular that a species of Peucedanum should be used as a food producer as these umbelliferous plants are generally very aromatic; quite a number of species of this genus and of the allied Ligusticum are indigenous to the Rocky Mountains and to the

Pacific Slope, and from one of them is probably derived an aromatic root somewhat resembling lovage, and which is said to be largely used in Colorado, where it is known as *Colorado cough root*.

A contrivance for *clamping* the cover glasses of microscopic slides was exhibited by Professor Maisch at the request of Mr. Wilder; it consists of a small brass frame pierced with a wire rod on which a thread is cut and around which a spiral spring is coiled; the spring presses the foot of the wire armed with a disk of cork down upon the glass cover, and to increase its power it is only necessary to turn the wire from left to right. It was designed by Professor Libby of Princeton and is made by Mr. T. H. McAllister, of New York, since about 1881.

Professor Maisch exhibited specimens of the following Mexican drugs, which he received lately from Professor Herrera, of Mexico:

The wood of the Lignaloe from *Amyris Linaloe* (see AMER. JOUR. PHAR., 1886, p. 21) is quite light colored and not so aromatic as some other kinds of wood sold as lignaloes. There is also a great difference in the character of the volatile oil as furnished by American and German distillers.

Doradilla—*Lycopodium nidiforme* (ibid., 1885, p. 554).

Habilla de San Ignacia, the seeds of *Hura crepitans* (ibid., p. 602.)

Goma Archipin—Copal de Penchi, *Rhus perniciosa* (ibid., p. 434).

Elaphrium copalliferum (ibid., p. 433); the resin is rather softer and has an odor resembling elemi.

Arbol del Perú is *Schinus Molle* (ibid., p. 340). The tree is quite ornamental in appearance and is also cultivated in California, where it is known as *pepper tree;* the fruit has a pepper-like taste; but black pepper is derived from a climbing vine.

Asenso del pais is *Artemisia mexicana* (ibid., p. 555). Though bitter, it appears to be less strongly aromatic than some of the numerous species of artemisia indigenous to the Western part of the North American continent, among which are the *sage-brushes* of the Western plains.

The various papers were referred to the Publication Committee and the thanks of the meeting were ordered to be tendered to Mr. C. E. Hires for the gift of the plates illustrating vanilla.

Mr. England called attention to the reaction which takes place between equal parts of *Salicylate of Sodium* and *Antipyrin*—if the dry powders are mixed together, in a short time the mixture becomes quite moist and finally deliquesces.

There being no further business, on motion adjourned until the 3d Tuesday in October, 1890.

T. S. WIEGAND, *Registrar.*

PHARMACEUTICAL COLLEGES AND ASSOCIATIONS.

Alumni Association of the Philadelphia College of Pharmacy.—During the past winter six social meetings were held, at which lectures were given or papers read by Prof. H. D. Reed, Prof. H. Trimble, Dr. H. C. C. Maisch, Mr. H. G. French, Dr. J. L. Capen, Rev. J. Y. Burke, Dr. H. F. Hansel, Prof. J. Guiteras, H. Kingsbury, Ph.G., Dr. E. P. Davis and Evan Ellis, Ph.G.

The Microscopical Laboratory was better attended during the past session than in previous years, but yet not as largely as the importance of the subject would seem to require.

The Annual Meeting was held April 15, when W. Nelson Stem, class 1873, was elected President for the ensuing year; J. W. England, class 1883, and C. Carroll Meyer, class 1873, Vice-Presidents; E. C. Jones, class 1864, Treasurer; W. E. Krewson, class 1869, Recording Secretary; D. H. Ross, class 1878, Corresponding Secretary, and T. S. Wiegand, class 1844, Trustee of the Sinking Fund. The Treasurer reported a balance of $736.91 on hand.

The annual reception was held on the same evening in Association Hall. The Retiring President, Dr. B. Frank Scholl, presiding. The Alumni gold medal for the highest standing at the examinations for graduation was presented to J. W. Morrison, of Nova Scotia. The recipients of the alumni certificates for best examination in the respective branches were W. Schleif, Jr., of Wisconsin, in materia medica; L. A. Schoppe, of Missouri, in pharmacy; E. G. Eberhardt, of Indiana, in chemistry; W. A. Johnson, of Pennsylvania, in general pharmacy; G. D. Feidt, of Maryland, in operative pharmacy; J. L. Crothers, of Maryland, in analytical chemistry, and F. M. Apple, of Pennsylvania, in specimens. The junior examination certificate was presented to H. T. Hicks, of North Carolina.

The class oration was given by F. A. Hennessy. The Class Prophet was F. Dunning, of Maryland; F. H. Smith, of Massachusetts, the Class Historian, and S. T. Hamberg, of Pennsylvania, the Class Poet.

A telegram was received from the Colorado Alumni of the Philadelphia College of Pharmacy, who were holding their annual reunion in Denver. The exercises were interspersed with music from the orchestra of students, and with songs from the Zeta Phi Glee Club.

The Association has now 1,700 members, residing in all parts of North America. The loss by death during the year was 14.

The Colorado Alumni Association of the Philadelphia College of Pharmacy elected officers for the current year at Denver. President, C. W. Lippincott; Vice-President, W. W. Beitenman; Secretary and Treasurer, F. A. Lynneman. A committee of five was appointed to consult with the graduates of other reputable colleges of pharmacy with the view of organizing a State Alumni Association; also to promote as much as possible the organization of a State Pharmaceutical Association. The annual reunion took place on the evening of April 15.

The California College of Pharmacy commenced the 18th annual course of lectures April 7, when addresses were made by the President of the University of California, Hon. H. Davis, and by Mr. H. Breckenfeld, the latter being in connection with a microscopical exhibition.

Commencements have been held by the following Colleges of Pharmacy:

Albany, N. Y.—March 11, at Germain Hall. 18 graduates. F. S. Veeder received the senior prize, and H. E. Walker the junior prize.

Buffalo, N. Y.—March 25, at Music Hall. 16 graduates. Prizes were awarded to J. J. Matthews, H. C. Cleveland and the junior prize to P. Escher.

Cincinnati.—March 19, at Music Hall. 23 graduates. Prizes were awarded to six graduates and four juniors.

Denver, Col.—April 17, at Trinity M. E. Church. 4 graduates.

Kansas City, Mo.—5 graduates.

Louisville, Ky.—March 7, at Macauley's Theatre. 18 graduates. Three senior and one junior prizes were awarded.

Maryland, Baltimore.—April 16, at Lyceum Theatre. 43 graduates. Prizes were awarded to J. A. Hardison, S. A. Williams, E. G. Stewart, A. J. McGlannan and W. Tarun.

Massachusetts, Boston.—May 21, at Association Hall. 28 graduates.

National, Washington, D. C.—May 20, at Lincoln Music Hall. 18 graduates.

New York City.—April 29, at the Metropolitan Opera House. 93 graduates. J. P. Arnold, A. Stierle and W. J. M. Robinson were the recipients of prizes.

Pittsburgh, Pa.—March 25. 11 graduates.

Purdue, Lafayette, Ind.—March 19. 16 graduates.

St. Louis, Mo.—March 19, at Memorial Hall. 42 graduates. Eight of the graduates were recipients of prizes.

Tulane, New Orleans, La.—April 1. 10 graduates.

The Delaware Pharmaceutical Association met in Wilmington, May 1, President H. R. Bringhurst in the chair. In his annual address the President advocated the thorough education of the pharmacists and their attendance at a school of pharmacy and graduating; the establishment of such a school in Wilmington was suggested. A report on trade interests by Z. J. Belt discussed the necessity of a more stringent pharmacy law, the organization of county societies, the reduction of the tax on alcohol, etc. A paper on *adulterations* was read by H. K. Watson, and one on *ultramarin in sugar* by J. M. Harvey. In the evening, a banquet was served in Eden Hall.

The Florida Pharmaceutical Association held its annual meeting at Tampa, April 8. Discussions of the officers' reports and of six or seven papers occupied the attention of the meeting. The officers elected for the ensuing year are: W. A. Rawls, Tallahassee, President; S. P. Watson, Jacksonville, Secretary, and E. Delouest, Ocala, Treasurer. The Association adjourned to meet in Jacksonville, May 20, 1891.

The Georgia Pharmaceutical Association convened in Macon, April 15, President Cheatham presiding. An address was presented by the President, amendments to the constitution and by-laws were adopted, and papers were read by J. W. Goodwyn on *hollow suppositories;* by C. M. Crosby on *stock of proprietary medicines*, and by H. R. Slack, Jr., on *toxicological analysis of the stomach*. The next meeting will take place at Augusta, May 14, 1891. The present officers are: J. W. Goodwyn, Macon, President; H. R. Slack, Jr., La Grange, Secretary; M. H. Taylor, Macon, Treasurer, and J. P. Smith, Augusta, Local Secretary.

The Louisiana Pharmaceutical Association had it eighth annual meeting in New Orleans, April 9, and was welcomed by Mayor J. A. Shakespeare. President Brooks and the different officers and committees presented their reports, which were fully discussed, amendments to the pharmacy law claiming much of the attention; likewise the Tulane University Pharmacy School, for which a number of subscriptions were procured. M. T. Breslin, Orleans, was elected President; Mrs. E. Rudolph, Corresponding Secretary, M. T. Chalin, Recording Secretary, and E. Lalmant, Treasurer. The next meeting will again be held in New Orleans, on the second Wednesday of April, 1891.

EDITORIALS.

The State Pharmaceutical Examining Board, of Pennsylvania, held examinations in Philadelphia on January 7, and at Harrisburg on April 29. The results were as follows:

Candidates, registered pharmacist, January, 52; passed, 15.
Candidates, registered pharmacist, April, 94; passed, 39.
Candidates, qualified assistant, January, 54; passed, 28.
Candidates, qualified assistant, April, 47; passed, 28.

A National Adulteration Bill is pending before Congress. Its object is claimed to be the prevention of adulteration and of the misbranding of food and drugs. It provides for the organization of a food division in the department of agriculture, with a chief (salary, $3,000) who is to procure and analyze, with the assistance of chemists, inspectors, clerks, laborers and other employés, samples of food and drugs sold in states other than where manufactured, and to publish the results monthly, giving also in the case of adulterations, the name of the manufacturer, brand, etc. The importation of adulterated foods and drugs from any state or territory or from a foreign country is prohibited, and the shipment (knowingly), delivery, receiving or sale of such goods is made a misdemeanor, the fine being for the first offence not exceeding $200, and for subsequent offences not over $300, or imprisonment not exceeding one year, or both. The U. S. District Attorneys are to prosecute all violations of the act. Penalties similar to the foregoing are also to be inflicted upon those who ship, deliver, receive or sell for exportation to another state or foreign country any compound article of food or compounded drug not accompanied by the label or brand to be authorized by the Secretary of Agriculture, the designation to be distinctive or descriptive, though not necessarily containing the word "mixture" or "compound." The counterfeiter of a label or brand can be fined only $100 without imprisonment and is, therefore, less of a criminal than the manufacturer who fails to procure the prescribed license. The license is issued for $10 by the Secretary of Agriculture to such manufacturer, manipulator, compounder or mixer of compound food or compounded drugs intended for shipment, etc., who certifies that the article is not deleterious or injurious to health, and who agrees to label or brand the article as approved by the Secretary. The license together with the label or brand is to be lawful evidence to transportation companies of compliance with this law. The Secretary may require the ingredients of any of these compounds to be published on the label, but no formula of a proprietary article is to be made public, if the article is not injurious to health, and is properly licensed and labelled. All moneys received are to be expended for carrying out the provisions of the act.

The term "drug" is to include all medicines for internal or external use, and these are to be deemed adulterated, if, where sold by a name recognized in the U. S. Pharmacopœia, some other Pharmacopœia or standard work on materia medica, the article differs from the standard of strength, quality or purity according to the tests laid down in such work; or if the strength or purity fall below the professed standard under which the article is sold.

The term food is to include every article of food or drink used by man other

than drugs or water, and such is to be deemed adulterated, (1) if mixed and packed with any substance so as to reduce or injuriously affect its quality, and tend to deceive the purchaser; (2) if any inferior substance has been substituted wholly or in part for the article; (3) if any valuable constituent has been wholly or in part abstracted; (4) if it be an imitation of and sold under the specific name of another article; (5) if it be mixed, colored, powdered or stained to conceal damage; (6) if any poisonous or injurious ingredient has been added; (7) if it consist of any diseased, filthy, decomposed or putrid animal or vegetable substance, or of the product of a diseased animal, or of an animal that has died otherwise than by slaughter.

An article of food or drug, not mixed with a poisonous ingredient, shall not be deemed to be adulterated, (1) if a mixture or compound known as an article of food under a distinctive name and not included in definition 4 (imitation); (2) if labelled so as to plainly indicate that it is a mixture, compound, combination or blend; (3) if anything has been added to the food or drug required for the production as an article of commerce in a state fit for carriage or consumption, and not fraudulently to increase bulk, weight or measure, or to conceal inferior quality; (4) if the food or drug become unavoidably mixed with some extraneous matter in the process of collection or preparation; (5) in the cases exempted by Section 3,436 of the Revised Statutes of the U. S.

The last section provides that the Oleomargarin Act, approved August 6, 1886, is not to be modified by the present bill.

We have given a full synopsis of this bill so as to enable our readers to judge of its vexatious character intelligently. We do not believe that there was ever in any country a law framed which under the pretense of preventing adulteration, was equally crude and at the same time oppressive. It is obvious that under the guise of proprietary articles of food and drink—"the formulas of which shall not be made public"—adulteration could be carried on to an unlimited extent even with the apparent sanction of the Government. While the bill defines the terms food and drug, it is silent as to the meaning of the terms compound food and compounded drug. The bill evidently intends that substances derived directly from the animal or vegetable kingdom, like tea, coffee, rice, milk, meat, and the like, be regarded as simple articles of food. But bread, cakes, candy, chocolate, etc., are not such simples, and since they are "manufactured, manipulated, compounded or mixed articles," it would seem that a license would be required for transporting them from one state to another. In regard to medicines the bill speaks of compound*ed* drugs (not compound). But whether a drug becomes compounded by dividing it in packages of (say) one ounce or pound each, or only after dividing it into separate doses, the proposed law gives no information; nevertheless, a license would be necessary if compounded drugs be shipped to another state, and even pharmacopœial compounds could thus be taxed, because they are not specially exempted.

It is not our intention to criticise the various provisions of the bill, its absurdities and crudities are quite apparent. Several bodies have protested against this proposed measure, and a Committee of the Philadelphia Drug Exchange and of the National Wholesale Drug Association, explained their views in opposition of the bill to the Senate Committee on Agriculture, and

submitted as an acceptable substitute a bill drawn upon the lines of the British law. In the following preamble and resolutions which were proposed by Mr. A. H. Jones and adopted by the Drug Exchange, May 17, the most prominent objectionable features of this bill are plainly set forth:

"WHEREAS, There is now under consideration by the Committee on Agriculture and Forestry, United States Senate, a bill entitled a bill 'for preventing adulteration and misbranding food and drugs, and the prevention of poisonous adulterations, and for other purposes;' and

"WHEREAS, The title is misleading, inasmuch as it does not, in any manner, regulate adulteration of food and drugs within the limits of the respective States and Territories, but aims to control the commerce in food and drugs between the several States and Territories of this Union, as the enacting clause clearly sets forth; and

"WHEREAS, The bill proposes to overturn business methods long established, and in all respects proper and mercantile; restrict and embarrass trade between citizens of the different States and Territories; trample upon vested rights, and impose regulations as burdensome, arbitrary, exceptional and indefensible, as they are needless, upon a class of American citizens engaged in lawful and honorable calling, from which other citizens are exempt and to be exempted; and

"WHEREAS, The design of the bill is to place the manufacture and sale of all drugs, medicinal chemicals, pharmaceutical preparations and proprietary medicines, as far as practicable, under the arbitrary management of the Secretary of Agriculture, and to impose taxes, under the guise of licenses, so as to force us to assist in defraying the expenses of a department of the Government, with which we are in no way allied; and

"WHEREAS, The bill is unfriendly to us in conception—the agitation of the subject being largely due to the efforts on the part of certain parties interested in Farmers' Alliances to secure signatures to petitions printed and circulated so as to influence the Committee on Agriculture and exaggerate the extent of adulteration; and

"WHEREAS, The bill is faulty in construction—as may readily be comprehended when the members of the Committee on Agriculture confessedly were so ignorant of the subject as to be unable to define what a compounded drug meant, according to their own bill; and

"WHEREAS, The bill is tyrannical in its provisions, demanding that even manufacturers of articles prepared according to the United States Pharmacopœia, and other standard works on materia medica, shall apply to the Secretary of Agriculture for a license to transport their products out of their own States and Territories; insisting that all private formulas shall be submitted to the Secretary, and giving him authority to decide which may and may not be made, if intended to go throughout the United States; imposing not only fines, but imprisonment; conferring autocratic powers on one man to humiliate an honorable body of American citizens and to extort money from them; therefore, be it

"*Resolved*, That we are opposed to all needless interference with the commerce between the States and the Territories.

"*Resolved*, That inasmuch as we are engaged in a business thoroughly

legitimate and essential to the welfare of the people, we claim to have the same rights to-day that we have always had, and demand the same privileges that are accorded to other American manufacturers and dealers.

"*Resolved*, That we denounce this attempt to extort a tax, under the flimsy guise of a license, to help pay the expenses of the Agricultural Department; we deny that the exigencies of the case call for an arbitrary interference with our business; we condemn this attempt to put us under the control of an imperious chief of a division or Secretary of a department, with whom we have never had any connection whatever, and never can have any analogical relation so long as agriculture and materia medica remain separate and distinct.

"*Resolved*, That we shall oppose such inconsiderate, unjust and partial legislation, believing that this is the proper and only course for us to pursue as free American citizens."

Committees of druggists from New York and Philadelphia had a hearing before the Senate Committee, May 27, and learned that the bill had been entirely remodelled upon the basis of the one submitted by the former Committee, and that the objectionable features had been eliminated.

Lactose and Glucose, according to the observations made by Dr. Sophie Meilach(*Bull. Gén. de Thérap.*, 1890, p. 24–39), are powerful diuretics. They do not produce any nervous troubles, and do not pass into the urine, but are burned up in the organism. The dose of lactose is 100 gm. for 2 liters of liquid. A syrup containing 75 per cent. of glucose produces its maximum effect in the dose of 200 gm.; 150 gm. cause an abundant polyuria, and 100 gm. suffice for giving a diuresis greater than normal.—See also AMER. JOUR. OF PHARM., 1889, p. 417.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Poisons and Their Antidotes.—St. Louis, Mo. Druggist Publishing Co.

A chart arranged in tabular form and in alphabetical order for convenience of reference, giving the common poisonous compounds and their antidotes. The treatment is described with sufficient details for practical application. In some cases where particular indications require special treatment, the symptoms are also described, and, when necessary, the mode of preparing antidotes, which cannot be kept on hand ready made, is indicated. The chart will serve a useful purpose to apothecaries and others who, in cases of emergency and in the absence of a physician, may be called upon to administer antidotes in cases of poisoning.

Uses, tests for purity and preparation of chemical reagents employed in qualitative, quantitative, volumetric, docimastic, microscopic and petrographic analyses, with a supplement on the use of the spectroscope. By Charles O. Curtman, M.D., Professor of Chemistry and Director of Chemical Laboratory in the Missouri Medical College. With twelve plates. St. Louis, Mo.: J. L. Boland Book and Stationery Co. 1890. pp. 256. Price, cloth, $1.75; leather, $2.25.

An excellent and very useful work for all who are engaged in analytical researches. It gives full and reliable information on almost any question con-

nected with the reagents used in chemical analysis. The aim of the work, as is well expressed by its title, is to give an account of the various uses to which the different reagents are applied, to prove their purity and to show the manner in which they may be prepared. It will thus serve as a supplement to the various manuals intended for the systematic instruction in analytical chemistry, and to the larger works on chemical analysis used by the professional analyst. The arrangement of the work is alphabetical, commencing with the various acids and terminating with zinc and its compounds. The group alcohols includes glycerin, and under the heading color-reagents and indicators, those numerous agents are found which give different color-compounds with acids and alkalies, each reagent is considered first as to its uses; next, the tests are given, by which its identity and purity may be ascertained, and finally one or more processes are outlined, by which the reagent may be conveniently prepared or the commercial article purified. The various applications of the reagents are briefly mentioned when they apply to well-known analytical methods. But a fuller description is given for processes of special application or less familiarly known. As an example of the author's method of treating the subject, and also to some extent of the scope of the work. We transcribe from page 175 the paragraph referring to the uses of resorcin, which is as follows:

Resorcin, or *Meta-diozy-benzol*, is a very delicate reagent for chloroform, iodoform and chloral hydrate. When a small quantity of resorcin is dissolved in a slight excess of potassium hydrate solution, it produces an intense red color, due to the formation of rosolic acid, on heating it even with traces of iodoform (*Lustgarten*) chloroform or chloral hydrate (*Schwarz*). The reaction is especially adapted to finding traces of these substances in urine. Small amounts of ferric chloride may be identified by this reagent by producing a violet blue color. It also serves for the detection of saccharin, Fahlberg (ortho-sulphamine benzoic anhydride, or benzoic acid sulphinide, C_6H_4 CO. SO. NH.), which is now extensively used as a substitute for sugar; on addition of resorcin and a few drops of concentrated sulphuric acid to a small amount of saccharin and heating, the liquid assumes, in succession, a yellow, red and then a dark green color, while SO_2 escapes with effervescence. If, after cessation of this effervescence, the liquid is made slightly alkaline by potassium hydrate, a strong green fluorescence indicates the presence of saccharin (*Ira remsen*). It is also used for the detection of carbohydrates (*Ihl*, modified by *Molisch*), especially glucose, which gives a red color when brought together with an alcoholic solution of resorcin and floated on concentrated sulphuric acid. By melting resorcin with sodium hydrate phloroglucin is obtained. Mol. W. = 109·764.

The tests for the same substance are given in the following: Resorcin forms small, colorless rhombic prisms, melting at 110°C., subliming at 276·5°. It dissolves in 0·67 parts of water at 12·5°C. and easily in alcohol and ether. Its aqueous solution should not form a precipitate with lead acetate (absence of pyrocatechin). It should sublime without residue. The commercial article is sufficiently pure if not browned by exposure to air and light. If such is the case, it must be carefully resublimed.

The following paragraph on the preparation of resorcin is equally instructive, and the same must be said of the chapter on the use of the spectroscope, which covers thirteen pages and is illustrated, upon plates, with outlines of the

apparatus and with the spectra of the sun of about a dozen metals and of a number of organic compounds.

The book, notwithstanding the convenient alphabetical arrangement, is provided with a good general index, containing also the synonymous terms used for the reagents, and with a second index giving in alphabetical order the names of the different inorganic and organic compounds, with the tests applied to them, and in each case with references to the page of the work where the more detailed information is to be found.

It will be seen from the above that we regard the work as a very meritorious one, containing information which is widely scattered throughout the chemical literature, and its value and reliability is enhanced by the care bestowed upon its preparation, it being evident that the author is not only familiar with the literature of the subject, but is also practically acquainted with the various reagents and methods described, and with their relative value for the purposes for which they have been recommended. The book fills a want, and since that want is well filled, it deserves a place in every library intended for consultation in connection with chemical analytical work.

A New Medical Dictionary; including all the Words and Phrases used in Medicine, with their proper Pronunciations and Definitions, based on Recent Medical Literature. By George M. Gould, B.A., M.D., Ophthalmic Surgeon to the Philadelphia Hospital, etc. With Tables of the Bacilli, Micrococci, Leucomaïnes, Ptomaïnes, etc., of the Arteries, Muscles, Nerves, Ganglia and Plexuses; of Weights and Measures, Thermometers, etc.; and Appendices containing Classified Tables, with Analyses of the Waters of the Mineral Springs of United States, and Tables of Vital Statistics. Small octavo, 520 pages. Half Dark Leather, $3.25; Half Morocco, Thumb Index, $4.25. Philadelphia: P. Blakiston, Son & Co.

Compactness and logicalness of arrangement, conciseness of definitions, elimination of the useless and convenience of size and price—such are the aims, as stated by the author, which guided him in preparing the volume before us; and to these must be added the endeavor to include those new words and phrases created during the past ten years which appeared destined to continuous usage. These objects, on the whole, have been well accomplished. The occasional erroneous accentuation of a word—as, f. i., Anthemis, p. 44; Viridis, p. 258, and Oleum, pp. 313, 384 and 400—is evidently due to oversight. But in a number of cases errors are noticed which can scarcely be attributed to the same cause. Thus we find on p. 44 Antharobin, instead of Anth*r*arobin; on pp. 44 and 107, Chrysobarin, instead of Chrys*arobin;* on pp. 56 and 373, Aspi*dio*-sperma, etc. The horse-chestnut is spelled Esculus (Æsculus). Under Coco or Cocoa, p. 112, Theobroma is referred to, but nothing is said of Cocos. Uncertainties are observed due to the otherwise commendable aim of briefness and for economizing space, thus Ol. is used for Oleum as well as for Oleatum; Pelargonic Acid is defined as a Complex Ether; The Latin terms Artemisia, Gynocardia, Heracleum, Paullinia and others have been omitted, though the corresponding English terms are assigned to their proper places.

A number of carefully prepared tables have been admitted in the text in appropriate places, such as tables of arteries, bacilli, micrococci, muscles,

nerves, etc.; and in the Appendix are found a very valuable account of the mineral springs of the United States, and numerous interesting tables on vital statistics. The preliminary pages contain also some valuable reference tables, namely, lists of abbreviations, prefixes, suffixes, etc.

The mechanical part of the work is very inviting. The shortcomings which we have pointed out are such as are likely to happen in the first edition of such a work; they do not seriously affect its value as a reliable book of reference, and as such it will doubtless be found valuable by those consulting it.

The Extra Pharmacopœia, with the additions introduced into the British Pharmacopœia, 1885. By Wm. Martindale, F.C.S., etc. Medical References and a Therapeutic Index of Diseases and Symptoms, by W. Wynn Westcott, M. B. Lond., etc. Sixth edition. London: H. K. Lewis. 1890. p. 485.

The preceding edition of this work was noticed by us in the issue for October, 1888. Compared with the present edition, the text of the latter is found to have been in part rewritten, deleted and condensed, so as to make room for the new material, among which we find phenylacetic, phenylpropionic, and trichloracetic acids, anthrarobin, cresalol, chloralamide, benzanilide, monobromanilide, exalgin, hydracetin, methacetin, orexine, safrol, thiol, thioresorcin, somnal, ural and others. The work, from the time of its first appearance, has met with great favor, because dealing with extra-pharmacopœial compounds and preparations. It is an excellent reference book for this class of medicines, which during recent years have been introduced in great numbers. Regarding some of these preparations, we desire to quote from the author's preface a short paragraph to which we have not previously referred, and in which they hold "that the art of pharmacy should tend towards making medicines palatable, but not at the expense of their efficacy; they should be combined extemporaneously to suit the disease; the reverse method should be avoided, in which the patient is treated by ready-made compounds, prepared to suit imaginary cases, as is too much the tendency of the present day."

Pharmacographia Indica. A History of the Principal Drugs of Vegetable Origin, Met with in India. By Wm. Dymock, Brigade Surgeon, Bombay Army, etc.; C. J. H. Warden, Surgeon-Major, Bengal Army, etc., and D. Hooper, Quinologist to the Government of Madras, Ootacamund. London: Kegan Paul, Trench, Trübner & Co. 1890.

In our issue of last October, we commented on the first part of this excellent and important work, and endeavored to give an idea of its scope and arrangement. We have now before us Part II, which concludes the first volume of 600 pages. It concludes with the drugs from the order of Rhizophoreæ, leaving about a dozen orders of the polypetalous dicotyledons to be considered, several of which are of considerable importance, owing to the drugs derived from them, or to the number of species belonging thereto. The most important orders in the part now before us are Burseraceæ, Anacardiaceæ, Leguminosæ and Rosaceæ, all of which furnish a number of important drugs used in India, many of which are but little known outside of that country. The drugs are too numerous to be mentioned in a review of the work, but we are satisfied that we shall frequently have occasion to refer to Pharmacographia Indica for reliable information on Indian drugs, and more particularly such which are not, or only to

a limited extent, articles of the European or American commerce. Part II is fully equal to Part I in interest and completeness of information. The work is to be recommended to all interested in Materia Medica, and more particularly that of the East Indies.

OBITUARY.

N. Spencer Thomas, Ph.G., died suddenly, at his residence, Elmira, N. Y., on the 30th day of March, 1890. Mr. Thomas was born in the year 1827, in Bucks County, Pennsylvania. He entered, at an early age, the retail drug store of Robert Shoemaker, Philadelphia, where, after a faithful service of seven years as an apprentice, he graduated from the Philadelphia College of Pharmacy, Class of 1847. In 1850, he entered into business as a manufacturing pharmaceutist, establishing a laboratory on New Market and Canal Streets, this city. For several years he did a prosperous business, enlarging and improving his quarters from time to time. The loss, by fire, of his entire establishment, with inadequate insurance, resulted in financial embarrassment. Mr. Thomas removed to Painted Post, N. Y., where he established a laboratory for the manufacture of Extract of Hemlock for tanning purposes. His business grew to large proportions, his manufacture of fluid and solid extracts of tannin barks meeting with ready sale, both in this country and Europe. Later, he added to his extracts the "Peerless Dyes," of which he was the proprietor at the time of his death. He resided in Elmira for several years prior to his death, being regarded as one of its most enterprising citizens. S.

Carl Jacob Loewig, professor of chemistry at the University of Breslau, died in that city, March 27, at the age of 87 years. He was born at Kreuznach in 1803, became a pharmacist, studied chemistry at Heidelberg under Gmelin, and at Berlin under Mitscherlich and Rose, was then lecturer on chemistry at the University of Heidelberg from 1830 to 1833, when he accepted a call to the chair of chemistry at the University of Zurich, and in 1853, as the successor of Bunsen, to the same chair in Breslau. He continued in this position until about a year ago, at the beginning of the 118th semester of his lectures, he was injured by a fall and incapacitated for further activity in scientific pursuits. He was the author of a monograph on bromine (1829) of a chemistry of organic compounds, of outlines (Grundriss) of organic chemistry, etc. He analyzed a number of mineral waters, studied the influence of alkali metals, amalgams, alkali sulphides, acids, etc., upon alcohols and allied compounds, investigated the acrid principle of ranunculaceæ "anemonin," a number of volatile oils, like those of parsley, spiræa ulmaria, prunus padus, etc., and devoted much of his time to study of the constitution of organic compounds. The volumes of this journal published nearly sixty years ago contain translations of several of his writings. The deceased was revered by his numerous pupils for his profound knowledge, no less than for his qualities as a teacher.

Joseph Schrenk, professor of pharmacognosy in the New York College of Pharmacy, died in Hoboken, March 10. He was a native of Hungary, and in this country was connected with several educational institutions, since 1881 with the college named. He was an active botanist and an accomplished microscopist.

George Thurber, M.D., died near Passaic, N. J., April 2, aged 69 years. He was a native of Rhode Island, and was formerly a pharmacist, devoting his energies to the study of botany, and also to chemistry. His explorations of the botany of various sections and localities in North America form valuable contributions to botanical science. He was professor of botany and materia medica in the New York College of Pharmacy from 1856 to 1861, was connected for several years with the State Agricultural College of Michigan at Lansing, and for a long period was editor of *The American Agriculturist*, until failing health compelled his retirement.

VARIETIES.

Preparation of Aseptic Catgut.—Brunner has recently studied the methods of disinfecting catgut for surgical purposes (*Schmidt's Jahrbücher*, No. 3, 1890), and believes that *raw* catgut is easily rendered aseptic. His method of preparing it is as follows: The catgut is first scrubbed with a potash soap, then placed for twelve hours in ether, and then for a time in a 1 : 1000 watery solution of sublimate. It is preserved in a solution composed of sublimate 1 part, glycerine 100 parts, absolute alcohol 900 parts. Before using, the gut must be placed in 1 : 1000 watery sublimate solution.

The author's experience with gut prepared in this manner shows that it is absolutely safe and unirritating to the tissue.

Referring to the use of silk and linen sutures and ligatures, Brunner says that though they may be thoroughly disinfected by boiling, experience has shown that even then, if placed deeply in the tissue, they will occasionally excite suppuration.—*Medical News, April 12.*

Peruvian Balsam in Local Tuberculosis.—According to the *Provincial Medical Journal*, Dr. Jasinski, of Warsaw, has used Peruvian balsam in thirty-one cases of local tuberculosis of the bones and skin with excellent results. The drug was used either in substance or in an alcoholic mixture, and was in some cases applied as a dressing, in others was injected into tuberculous cavities. In all but one of the cases healing ensued more or less rapidly.—*Med. News*, May 10, 1890.

The Inefficiency of Sand Filters.—Drs. Frankel and Piefke, of Berlin, have recently made an exhaustive study on the filtration of drinking water through sand (*Zeitschrift für Hygiene*, No. 1, 1890). Their experiments conclusively prove that the danger of infection from impure water is only slightly reduced by filtration through sand; bacteria passing through at all times, but in larger numbers just after the filter has been cleaned and again after it has been in use for some time.—*Med. News*, May 10, 1890.

Salicylate of sodium in general pruritus.—Dr. Wertheimer, in the *Münchener medicinische Wochenschrift*, advises the treatment of general pruritus by means of a three-per-cent. solution of sodium salicylate, in doses of a tablespoonful thrice daily. This plan of treatment, he says, may be continued for some time, in the confident belief that it will not only promptly moderate the unpleasant pruritic symptoms, but also radically remove the underlying disease.—*N. Y. Med. Jour.*, Mar. 8.